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TRANSDISCIPLINARY COOPERATION WITHIN REALIZATION OF IDEA OF "TRIPLE HELIX"

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Abstract

The article describes the problem of correlation of "man-technique" as multidimensional. The meaning of innovations of the "Triple Helix" (university – business – government) is the production of new knowledge as required. The authors propose the realization model of the concept «Triple Helix» by the example of cooperation of the government institutes, business companies in the sphere of healthcare service or science and education which work with biotechnologies. In these circumstances, there is a problem "denaturalization" of the living body and "psychologizing" of artificial. There is a growing danger posed by uncontrolled exposure of information on individual and mass consciousness. In modern society, the problem of protecting the individual from such influences is one of the most important. The correlation of new technologies and the fundamental human values, problems of techno-science and development of global civilization increase social risks and personal responsibility of scientists. The ideas given in the article are becoming an ideological base for understanding the social perspectives and values in the development of society in the anthropological context. Such knowledge contribute to the formation of the engineering community as a responsible social entity with the new value orientations of consciousness.

Keywords: Engineering community; transdisciplinary approach; transinstitutional cooperation; engineering ethics; converging technologies

1. Introduction

The problem of correlation of "man-technique" is multidimensional, because the mutual dependency of human and technical environment is detected at different levels associated with the complex

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organization of the human and social dimensions of his life. This interaction is manifested multilateral cooperation between society and technological development.The modern global, ecological, socio-ethic and sociobiological problems need new philosophic methodological approaches in the solutions of the new types of sciences. It gets its actuality in the popular idea of «Triple Helix» that becomes more and more popular all over the world. However, in different publications, we might meet various versions of this idea, like science-technology-society, science-industry-nature, and university -business-government.

The concept of transinstitutional cooperation (university – business – government) is being built on the previous concept formation of the transdisciplinary idea. The meaning of innovations of the «Triple Helix» (university – business – government) is the production of new knowledge as required. Some authors consider that "innovations in technics or any other spheres are always preceded by social innovations in the form of creation transinstitutional centers, working groups or companies where they all bring in contact although they were dissociate groups of scientists, businessmen and politicians before". Consequently, the field of transinstitutional cooperation is called into existence. Which place and role takes the system of philosophic consciousness in this scientific field? Will this cooperation of specialists from different fields be effective? It is necessary to remember that "the system of values and norms that are typical for scientific knowledge, assumes the system of values and norms that are specific to the organization created to decide the exact business goals"(Kiyashchenko, 2010). One of the problems of the modern philosophic knowledge is analytics of transdisciplinary approach in the perception of natural reality. For understanding of the problem it is necessary to contemplate the concept of transculture. In Russia it appeared in the beginning of 1980-s during the period of the development of culturology as the comparative studies of different cultures. Transculture is the specific state of the person freed from the nature by the culture" (Epstein, 1995). In this case, transculture is not general or identic that all the cultures possess but cultural diversity and universality as the character of a personality.

2. Methods

Transculture is the state of virtual appurtenance of a person to many cultures. It is the field of "outsideness" towards all existent cultures, the freedom of every person to live at the boundaries or behind those boundaries of his «inherit» culture, black or white, French or Georgian, masculine or feminine. Transculture defines the expansion of the boundaries of ethnic, professional, linguistic and other identities at new levels. It creates new identities in the zone of blurriness and interference. It challenges metaphysics of originality and discontinuity that are peculiar to nations, races, professions and other cultural generation. Those generations stay and do not spread in the «politics of identity» which happens by the theory of multiculturalism.

In the concept of triple helix, it is the zone «between», the transition from the science to the government and from the government to business. Along with that, initiatives of the government, science and society form transdisciplinary helixes where social reformatting of mutual relations takes place in between science, society and politics. The hybrid groups that appear in the scientific research should have the skills to exist in the space of transculture as a specific condition of a human being. This man should renounce not only from his culture, tradition, and language but also from his professional addiction, an executive and bureaucratic component and work team.

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There are the specific social distributed forms of the knowledge production which form the specific thesaurus. The special aspects of the thesaurus are connected with the understanding of value and semantic interpretation, skills as knowledge and skills of concrete social practices like pedagogical, political, research and others.

3. Results

The realization model of the concept «Triple Helix» can be seen with the example of cooperation of the government institutes, business companies in the sphere of healthcare service or science and education which work with biotechnologies. The most successful example is the business model of an American Company Myriad Genetics Inc. that produces the tests for ovarian cancer and breast cancer diagnostics. This company represents the collaboration of business and science and connects with the University (Tishchenko, 2015). The model of «Triple Helix» is implemented here in the form of equal co-financing of research studies by government, by business, by private person (over the fundraising technology). In Russia this tendency will be clearly seen by the example of transhumanitarian projects of the future: «Children -2030» and «Russia -2045». This refers to the possibility of forming, changing and forecasting the nature of the future man with the help of modern biomedical technologies. The new Eutopia of creating a baby with predetermined characters came into existence (the form of Eugenics). These ideas are accompanied with the thoughts about the possibility of psychological and social-psychological building up of the personality by creating the training programs. These training programs will develop the programmed characters, for example leadership. This kind of «revolution» is interconnected with the active implementation of information technologies in the sphere of medicine. One of the most promising directions in medicine development and computer technology is microchip implants (Bilyaletdinov, 2006). Many specialists suppose that joining the body and electron implants will help to fight against the incurable diseases, recover from serious injuries and will expand communication and informative skills of a person. Some who carried our projects prove this. The fast and paralleled development of medicine and information technologies has become the reason for the discussion about the rules that will regulate health information technology. This is a broad array of issues and problems. It includes ethical, philosophical and legal questions. Can a man use the improved technologies not in the medical purposes? How to secure the body identity integrity when it gets connected to information and communication systems over the implants? Is it possible to guarantee that information and communication implants will not violate the human rights?

In these circumstances, there is a problem of "denaturalization" of the living body and "psychologizing" of artificial, or we can say that the technicalization of human abilities occurs simultaneously with archaization and ecologization of the man himself. There is a growing danger posed by uncontrolled exposure of information on individual and mass consciousness. In modern society, the problem of protecting the individual from such influences is one of the most important.

The correlation of new technologies and the fundamental human values, problems of techno-science and development of global civilization increase social risks and personal responsibility of scientists. Among the fundamental human values are: relationship to nature, to others and man’s attitude to the spirit (intersubjectivity). According to some authors, it is possible to allocate at least ten fundamental relations that are covering two main areas. The first one is focused on the study of the biological nature of a man.

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This is the project of a new naturalism that criticizes introspective methods of human cognition and generates new versions of anthropogenesis. The second direction is connected with the phenomenon of transcendence, with the spiritual in man, and it is defined by its moral ambitions. Both directions cause debates in scientific and social environment. It becomes obvious that there is extension of moral orientation in the problems priority. The problem of moral and legal responsibility raises about the future of human development more often for the scientists biologists.

Human rights activists believe that information and communication implants can significantly restrict the freedom of a man. They can be used to gain unauthorized access to personal information, for example, in cases where they are connected to the computer. Using implants can determine the location of a man.

Another problem would be the offer of the "improve" the human devices on the market (such as implanting a cyber-memory). This will cause social inequality between "improved" and those people who cannot resort to the help of implants (such negative scenario called "cyber-racism"). Legal and ethical guidelines for these technologies need to be determined today. The European Group on Ethics in Science and New Technologies of the European Commission has already made recommendations. Their validity is defined by five years and they are almost expired. These rules were designed to create the legal and ethical boundaries of biotechnology, which will support the principles of civil society and, at the same time, do not become a barrier to the development and implementation of information and communication implants.

Most electronic implants are the devices that receive power from an independent power source. They use software algorithms that run with the help of non-biological means called chips that are based on silicon. For medical purpose, the implants are used for the restoration of inadequate body functions (stimulation) or for partial or complete replacement of the functions of body parts (prosthetics).

A large number of electronic devices refers to implants, including most common active medical implants. For example, pacemakers provide a stable functioning of the heart. By the way, in our country, these kind of devices, including electronic larynx and the electronic nose, are created, produced and introduced into medicine at our university. Capillary implants transform speech and other sounds into electrical impulses that stimulate the auditory nerve endings in the inner ear. With the help of these electronic devices deaf people might partially return sense of hearing. Implantable insulin pumps automatically maintain the necessary level of insulin in the blood. Neurostimulation implant is a device for affecting the electrical impulses in the nerves. Spinal cord stimulator eases chronic pain. Sacral nerve stimulator helps in the treatment of incontinence. Vagus nerve stimulator is used for epilepsy and for monitoring the state of mind in deep depression. Implants providing stimulation of the brain are used for Parkinson's disease and for the treatment of essential tremor. Various companies are developing much more efficient and powerful information and communication technologies for effective treatment of serious illnesses and for elimination of consequences of serious injuries, as well as the natural extension of human capabilities.

The researchers say it will take many years before most of the above technologies will be implemented in practice. But even today, we can already speak about the radical changes of modern ideas about the person that will occur in the following decades due to the improvement of information communication implants (IC implants). In this connection there is an urgent need of the penetration of the

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humanities in engineering activities, as the direct and indirect involvement of knowledge about human into engineering consciousness (Cheshev, 2016).

It is recommended to apply historically formed in the legislation of the European countries principles to regulate the use of IC implants and studies in this area. The following principles are included: the dignity of a man, his natural rights, equality and autonomy and the resulting postulates. These are the postulates like precaution of the least of medical and / or non-medical interventions in the human body, the need to achieve therapeutic results after the intervention in the human body and the principle of proportionality between aims and means. That is a requirement to use legitimate means to achieve legitimate aims and relevance, according to which the technology will meet the circumstances and conditions of each case of application.

The legal principle Corpus Habeas should act in case of IC implants. According to that principle the human body is inviolable. The authors emphasize the need for greater attention to the protection of information that will be contained in the IC implants. Connected to information networks IC implants can be used for unauthorized access to the information they contain and monitor the physical moving of a man. Implanting these devices should be made only with the agreement. The main reason for their therapeutic usage is to preserve the life of the patient and the absence of any alternative treatment.

The access to technology of IC implants should be provided for anyone no matter financial capacity and social status of the patient. No therapeutic use of IC implants should be allowed only with the agreement of a person. Thus the person who wants to install an IC implant in his body must be aware of the possible risks to health and the possibility of unauthorized access to the information stored in the implant. In the context of the large number of pseudo-scientific clinics a careful monitoring of IC implants should be done. Those implants are offered on a commercial basis and are intended to "improve" the human. The volunteers who agreed to participate in the testing must sign the agreement. It is necessary to observe the volunteers do not get physical, mental or material damages. Also, people, the volunteers, should be able at any time to leave the study group. The usage of IC implants in the treatment of patients with serious neurological diseases should not discriminate or violate human rights. We cannot allow their use for manipulation of mental abilities, changing the identity, memory, identity or perception of other people, for dominating over others, those who do not use the IC - implants.

In the 21st century, it has become clear that science merged with technics, and the technology. And they promise all together fast commercial gains due to their applications. The science also includes promises, and the synthesis of science and technology has changed not only the classic division of labor between the explanation (science) and promise (technics and technology) but also changed into a different level of ethics of relations in the scientific community. The dominant positions were taken by corporate ethics of the business community that scientists work for to complete the orders for the development of a drug. Science like business started to make promises based on the means used in techno-science: conceptual, mental, instrumental and practical devices. So, NBIC-convergence of technologies (nano-bio and information technologies and cognitive science) applied to a man more than human measures. It has become the dominant technical understanding of a person. Repair, improvement, replacement and as a result a double, made of ageless material. The problem of death is reduced to a corporeal being. Do we want to overcome the nature with the transformation of the body, either in the machine or in a moral monster? This also affected the autonomy of the individual. In traditional society and man-made society,

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the relations to the problem of the autonomy of the individual are different. Traditional society does not accept the autonomy of the individual. The man-made (anthropogenic) society defends the autonomy of the individual that allows one to dive into a variety of social communities and cultural traditions. The man is understood as an active and independent being. His work is extensive. It aims to transform and remake the outside world and nature. But nature cannot be a bottomless reservoir for various types of man-made exercise. Human activity originally appeared as a component of the biosphere, but not its dominant. The usage of prenatally diagnostics of a fetus is a genetic selection, and this is unacceptable. This is a eugenic approach. So, there is another moral problem there. All the moral issues of our time are not indicated here today. They are not solved. Let us be optimistic about these questions and see more and more supporters of the preservation of the human species to strengthen ethics of responsibility as scientists, business community and relevant government officials.

4. Conclusion

To conclude we note the following:

1. Rationalization, expanding the horizons of science arenot unlimited. The sense of proportion and value are being lost.

2. There is scientific, tragic conflict of irreconcilable and incommensurable origins. It creates a border situation between the animal and human. Hybrids or chimeras appeared as a result of crossbreeding of genetically different species. Ethics is powerless in controlling genetic research. As a result, para-people appeared to be chimeras or cyborgs. The development of xenotransplantation leads to unknown viruses, animal nature.

3. There is a border situation between a man and a machine. A device interferes in the human body and affects the heredity.

The ideas given above are becoming an ideological base for understanding the social perspectives and values in the development of society in the anthropological context. Such knowledge contribute to the formation of the engineering community as a responsible social entity with the new value orientations of consciousness.

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