

## RRI 2016

### International Conference «Responsible Research and Innovation»

#### MAN AND HIS PROSPECTS UNDER CONDITIONS OF VIRTUAL REALITY DEVELOPMENT

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#### Abstract

Virtual reality (Engl. virtual reality – possible reality) – a model image of quasi-reality with the aid of definite technologies allowing ensuring partial or complete human immersion in this representation creating an illusion of actual reality. The application of computer technologies is assumed as a basis of its creation which allows realizing in the most complete form the human immersion in an artificial world created by technical means. Virtual reality as the highest creation of the artificial world creates an illusion of man immersion in real events. But such abstracting of man from a social reality of natural life formed by thousands of his evolution years turns into a lot of negative consequences for man himself, destruction of many his natural functions and skills. The reasons, consequences and measures for counteraction to the deterioration psychological, physical and social human health under conditions of information society development and virtual reality enhancement are considered.

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**Keywords:** Man, information enhancement, virtual reality, cyberspace.

#### 1. Introduction

During last years, the human social dysadaptation, the decrease of human activity in social life and general physical activity caused by man’s immersion in the virtual life of computer games, TV, social networks and other modern services and services of the Internet gain topicality.

Virtual reality (Engl. virtual reality – possible reality) – a model image of quasi-reality with the aid of



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definite technologies allowing ensuring partial or complete human immersion in this representation creating an illusion of actual reality. The application of computer technologies is assumed as a basis of its creation which allows realizing in the most complete form the human immersion in an artificial world created by technical means.

Immersion – a consciousness state, often artificial, during which self-awareness of a subject about his/her own physical state decreases or disappears completely. This psychological state is often accompanied with the sensation of space infinity, super-concentration, distorted by time sensation and also by easiness and non-boundedness of motions. One emphasizes three basic kinds of immersion in virtual reality: emotional, sensor-motor and cognitive. The emotional immersion occurs when a user begins experiencing the emotions of the virtual person or the emotions connected with the results of the own work in the system. During sensor-motor immersion, a user merges with the environment represented and it influences human impressions and sensor self-perception. Cognitive immersion occurs during the solution of intellectual problems, choice from a wide spectrum of possibilities and acquisition of new knowledge (Bjork, & Holopainen, 2005).

The immersion is most often explained by human keenness on the process of acquisition and processing information, virtual object control and bears a shade of something thrilling. In most cases, the immersion is organized at the expense of a fascinating subject and various subject matters in a virtual world, adding a wider comprehension and dissemination of visualization for a contact with which there is no need in specialized hardware. In the interface of any even non-playing and not 3 D program, all objects, such as buttons, input fields, switches, windows, are virtual. In such a way, any programs, sites, TV programs introduce a user into a virtual world, but with a different level of immersion and resemblance of interface objects and data with object of a real world. The virtual reality systems are used for teaching professions where the operation of real devices and mechanisms is connected either with the increased risk, or with considerable costs (cosmonaut, pilot of a airplane, train driver, traffic superintendent (flying control officer and so on), in intricate situation computer games, and also in teaching systems intended for mastering a strategy and tactics of decision-making in complex quickly changing conditions. Fundamentally, new aspects of virtual reality systems appeared in connection with the development of Internet technologies which allow creating unlimited possibilities for travelling in virtual worlds – cyberspaces.

Cyberspace (Engl. cyberspace) – metaphoric abstraction used in philosophy and in computer technologies is a virtual reality which presents the second world both “within” computers and “within” computer net systems. This term is usually used for the description of objects and events in a computer net system.

Unfortunately, virtual reality becomes not only the means of modeling and investigation of the real world, but substitutes it for many people. It is possible to emphasize the following basic psychological problems of virtual reality: 1) the problem of psycho-physiological interaction of man and a computer; 2) the problem of virtual reality authenticity; 3) the compatibility problem of the intellectual and emotional world of man and cyberspace; 4) The problem of psychological safety of virtual systems (Kaganov, 2003).

## 2. Methods and Results

As part of the scientific and philosophical Bryansk school of the new direction of society development – technogenic and a new direction of development of the world - a social-technogenic one there are conducted socio-techno-natural studies of formation of the global anthropogenic (industrial and postindustrial) society and its impact on the biosphere and man. Based on statistical and sociological studies, analysis of existing theories of social development, their interpretation of the developing picture of the world, scientists of Bryansk school have made a number of completely new conclusions that can not be ignored by the development of the global community and the future development of the biosphere, which is dying in front of our eyes. Revealing picture of the technogenic and virtual world, they are looking for ways out of the crisis, the continuation of the natural self-sustaining biosphere and preservation of humankind on the Earth (Trifankov, & Dergachev, 2016). School representatives use a new methodological approach – socio-natural, which origins date back to the works of Vernadsky (2001), who regarded the problems of formation of the new world of the biosphere - the noosphere.

The most pernicious manifestations of cyberspace effect upon human psyche are new kinds of addictions arisen in the information world – internet dependence, game-mania, computer dependence, media dependence.

The internet dependence includes the following phenomena:

- “Electronic vagrancy”, that is, a lengthy (multi-hour) navigation through the Internet resources without a definite purpose; as an amusement source serves the fact of presence in the network, or the recognition of something new as a result of similar web browsing;
- irresistible inclination for the Internet application, that is, a pathological addiction to the gaming mediate by the Internet, online auctions and exchanges or electronic purchases;
- dependence upon “cyber-relations”, that is, upon social contacts: communications (in chats, online games and TV conferences) and the establishment of friendly relations or “flirtation” in the course of communication (Voiskunsky, 2001).

The media dependence arises in people who are in habit of having daily actual information and responses to arising questions and cannot manage without mass media. Any change in social surroundings results in the human experience concerning events significant for everybody and striving for following the development of these events in press, radio, TV, information Internet-sites and other means of electronic communication. The majority of virtual reality segments rely upon constant provocation, stimulation of involuntary attention: bright banners, references, animation and so on. Unknowingly it creates an effect of a strong dependence and hinders the mechanisms of volitional regulation. Many things in virtual reality rely upon the fact that any man felt himself there comfortably (Voropayev, 2016).

Like any other dependence and bad habit, the information kinds of addiction are manifested in a constant persuasive need in definite stimuli accompanied with the adaptation to a greater value of a stimulus and expressed physiological and psychological symptoms. The computer kinds of dependency bring to surrounding people a physical and psychological discomfort, but at the same time they are not apprehended by a dependent man as something pernicious.

As many other kinds of psychological dependency, the computer and media dependencies hurt physical and psychological human health, destroy social ties and respond to treatment with difficulty.

Interactive computer games are based on the intercommunication of man with a virtual world and on the identification of a player with a game character visible or meant. The experiences of vivid and often unusual to real world emotions in cyberspace result in the stimulation of pleasure centers of cerebrum and the need of a player in a greater portion of feelings (sensations). All aspirations of a player are connected with a virtual world, the location in which brings him moral satisfaction. Virtual reality of computer games allows man to live several lives, to feel himself immortal and all-powerful. During the game, man experiences the same feelings as a virtual person does, achieves virtual “heights”, becomes a possessor of virtual “values”, feels positive and negative emotions, gradually gets into the habit of their obtaining and cannot do without them.

For the game world giving rise to the dependency, the 3 D qualitative graphics is not essential, the immersion of a user in this world can happen at the expense of a thrilling game process the characteristics of which are individual for every user.

Common computer games with the end number of levels or stages can result in man elimination from social life for some days. After game ending, the dependency can be overcome through the transition to a constructive kind of activities.

With the advent of net computer games unifying the whole communities of players all over the world, the problem of computer game-mania gained the strongest acuteness. The creators of online games position them as free of charge lasting limitless period of time and giving boundless possibilities for the potential growth of virtual characters. In such games, some people pay for the game with life and separation from the society; others, besides this, buy for real money extra “bonuses” for a more successful game, emptying a family budget. Administrators and creators of online games do their best to attract as many users as possible with the aid of advertisement and other means where a certain part of users will pay for their work and do not let them out of the game giving constantly new stimuli supporting and increasing their dependency. Only in Russia in some most popular net games play constantly more than 10 million people, some million more are in a risk group playing from time to time. As a rule, it is the most active part of the society at the age of 10 to 40. Apart from the fact that it is an evident loss of time for a game process which makes for the many addicted more than 16 hours a day, the dependency caused by net games (sort of game-mania) results in intra-family conflicts, family destructions, adversely affects young people psyche and the ability of young people to training. It is difficult to attract an addicted player to training problems, active communication, a useful labor for a family and society, and a help to people. Computer dependency becomes one of the main reasons of truancies, non-attendance of studies and further sending down from college.

In the course of virtual communication or a game, a man can create some virtual avatars of his own and change his behavior depending on characteristics of one's own virtual image. The communication in social networks on behalf of an imaginary person or experiences for a virtual person can result in strong mental diseases (split personality). The presence of many clones results in that a man lives several lives realizing many scenarios of own behavior in a virtual world. Keenness on a virtual life results in strong problems in a real human life. He simply has no time to eat, to sleep, to look after himself, communicate with kith and kin, colleagues. Therefore, the scenario of the won life even at the considerable experience of virtual communication and virtual success is, as a rule, unlucky that results in the further immersion into that world in which everything develops more successfully.

Virtual effect blurs moral boundaries limiting a man in a real life, a feeling of impunity and anonymity gives rise to mean feelings, the level of communication can transform to the level of threatening and foul language and causes personal degradation. The cases of murders and suicides owing to computer dependency of grown-ups and children, transfer of virtual cruelty into a real world take place in a current situation (Akulich, 2016).

The computerization and informatization development is followed by an increase in crime in the field of bank system information safety (stealing money from electronic accounts), espionage, infringement of copyright, creation and dissemination of injurious programs, attacks on internet-resources, phone fraud and other cyber-crimes. A possibility to become a victim of cyber-criminals makes residents of the cyberspace experience psychological stress, take measures for the protection of their data and programs.

A significant problem is a deterioration of intellectual health of younger generation conditioned by changes in the methods of knowledge gaining and task fulfillment. At present, we are witnessing a mass introduction of computer technologies in the educational process. The necessity of computer technique application for research and information processing arises already in curriculum of primary schools. In the educational process, there is introduced an automation for obtaining the results of mathematical operations, abstract preparations according to the samples from the Internet and other means for the simplification resulting in the degradation of intellectual abilities of youth and memory weakening. Many teachers do not take into account that fact that teaching with the aid of computers and an early habituation of computer culture causes a lot of related negative effects affecting the way of child's life, child's behavior, health and intellectual growth and development.

Socialization of a younger generation is also under threat. The process of mastering behavior examples by a child, psychological settings, social standards and values allowing him to find an own place in the society is transformed by a growing indirect way of communication by means of information technologies, information consumption imposed by mass media. The substitution of a real communication for the communication in cyberspace games, watching programs or films in the course of time results in the withdrawal of an individual from the society and his asocial behavior in the society.

In the technogenic world with its ecological problems, the over-indulgence of people with information techniques is often injurious to people health which is already on an average weak enough. The problem of the physical load decrease in the aggregate with changes in social communications and youth lifestyle is now urgent enough (Kulikov et al., 2009).

Many people work constantly with computers and, thus, spend actually all their free time. A sedentary lifestyle followed by emotional experience and stresses results in the immunity decrease and the morbidity increase of catarrhal and other diseases.

The consequences of regular long work with computers (Secondary Actions..., 2016):

60% of users suffer from diseases of eye organs;

60% of users suffer from diseases of the cardiovascular system;

40% of users suffer from diseases of the gastrointestinal tract;

10% of users suffer from skin diseases (dermatoses).

Problems are with vision. Information reading from the monitor causes an eye over-strain at the expense of an image pixel structure on the computer monitor and a constant distance from eyes to an observable object. A head-on screen glow and monitor glares hurt eyes. When working at the computer,

the winking frequency of a user's eyes decreases at least three times. At the same time, a cornea surface "dries". A dry eye syndrome develops some time later at computer work and is manifested in burning pain in eyes, conjunctiva redness the occurrence of a vasculature on eye side surfaces. And also a long work at the computer can increase the risk of myopia and glaucoma.

The problems with the musculoskeletal system arise. A person working at the computer for the long time must keep a relatively stationary position which adversely affects a vertebral column and circulation of the blood throughout the body (haemostasia). Congestion is particularly strong manifested at the level of the pelvis minor and upper and lower extremities. At longer disturbances of blood circulation the disturbance of tissue nutrition arises and hence vascular walls are injured which, in its turn, results in their irreversible dilation. A long work at the computer can become a reason for bearing violations and spinal curvature. Children are most at risk of this disease and their spinal curvature occurs like scoliosis. In adults with sedentary lifestyle, there is often a herniated disk and degenerative disk diseases.

The problems with nervous system and psyche take place. A work at the computer is an intellectual activity. Therefore, a basic part of load falls on the nervous system, and, in particular, upon cerebrum. Very often a long computer work can be a reason of headaches. A chronic over-loading is one of the factors initiating headaches. As a result of a long computer work, a person feels tired, becomes irritable, and often answers questions with monotonous answers. Such phenomenon in a modern society is called a chronic fatigue syndrome, and, according to the data of the official medicine, it resists any medical treatment.

The attention disorder and impossibility to concentrate are consequences of chronic fatigue. A long computer work, a work with the Internet and computer games can cause dependency.

Nourishment problems arise. A computer work or a game often absorb all attention of a working user, and, therefore, such people neglect normal nourishment and work half-starving during a day. Improper diet results in not only disturbances in digestive tract functioning, but also mineral and vitamin deficit arising (Secondary Actions, 2016).

In such a way, current kinds of addiction connected with the virtualization of lifestyle affect adversely mainly physical, psychical, moral, intellectual and social health of man. There is a threat to the integrity of man, loss of orientation in time, decrease of the role of senses unused in a virtual reality, disregard for the real health in exchange for virtual success and imaginary benefits.

Besides above-mentioned adverse effects on a man, a virtual reality is a guide of thoughts of information creators to the minds of millions of people all over the world allowing the creators to obtrude their point of view and control their consciousness.

Easily accessible radio, TV, and Internet resources are tools of different political, social and cultural manipulations. The techniques for consciousness manipulation in a virtual world create new potentialities for elites of post-industrial society aspiring to the growth of their influence and pursuing often in human ends in the formation of global economy, policy and culture (Dergacheva, 2009).

It is particularly easy to carry out the manipulation with consciousness when man is at the state of immersion into virtual environment (man's enthusiasm for a process), which often occurs in the communication environment and net games. People brainwashing (zombing) was earlier, but with the growth of Internet resource accessibility and with the advent of new techniques of communication and entertainment, the potentialities of consciousness programming increase considerably. Comprehending

the significance of this problem, many countries create means of influence and counteraction to resist cyber threats — so called cyber-troops. We are witnesses of information warfare with the aid of TV, radio, press, the Internet, where more and more new persons are drawn in an active or passive way participating in the formation of mass public consciousness.

In such a way, it is not advantageous for those people who control social consciousness with the aid of new techniques to recognize a virtual environment effect as harmful, but quite the contrary, it is advantageous to involve as many people as possible in virtual worlds. Cyberspace widens constantly at the expense of new users, a simplification of an access to information resources and the use of the styles of interaction is intuitively understandable. Year in year out, it becomes “younger” involving in its ranks many schoolchildren and preschool children. Every day the users are offered new models of “gadgets” possessing higher quality of an image, sound, productivity, communication potentialities, universality, autonomy and, at the same time, being smaller in dimensions. Many people do not confine themselves with the presence of only one mobile phone and a computer using actually daily in their practice smartphones, portable tablets, note-books, electronic books, game consoles, navigators, board computers and so on.

The immediate prospects of the universal introduction of the qualitatively new reality in human life are connected with the development and reduction of prices for the systems for 3 D immersion (head-mounted displays of virtual reality, sensor gloves, information suits, virtual spheres) which are not available at a reasonable price. They create a more realistic illusion of the presence and travel in a virtual space in comparison with common interfaces and means of interaction and, as a consequence, will result in the aggravation of existing problems of addiction and human health. Further development of virtual reality systems is connected with the creation of neuro-computer devices for information processing and information exchange immediately with the sections of human cerebrum omitting human organs of sense. Hardware potentialities grow constantly allowing the approach of a virtual world in its comprehension quality to a real one involving already not only eye sight and hearing, but also the sense of touch, smell and taste. Similar techniques will assist in a social adaptation rehabilitation of invalids, but on the other hand, will result in possibility of loss by man his biological and social substance.

### **3. Findings**

Like many other inventions of mankind, the information techniques directed to the automation and welfare for the society bear a contradictory character and, at the irrational use, do harm bordering on the threat to the existence of its creator (Demidenko, Dergacheva, & Popkova, 2011). On the one hand, mass media allow obtaining invaluable medical consultations of leading scientists at any distances saving human lives; on the other hand, hundreds of millions of people are involved into social networks, game worlds disappearing for the society in a cyberspace. Automation and informatization release time of people validating essential documents in state offices, making an appointment with a doctor, searching and buying consumer goods. Leisure time of people increased in such a way is used by many people irrationally and just because of information systems. Instead of intellectual and spiritual development, a man uses civilization achievements harmful to himself – over-indulgence with computer games, watching leisure software and films, communication in social networks, reading high life gossips and so on (Trifankov, & Dergachev 2016).

#### 4. Conclusions

Precautionary measures against a negative constituent of virtualization and information systems are:

- the increase of the standard of education and culture in the field of social-psychological aspects of information communication of man and techniques;
- the introduction of common forms of training, games, reading books, magazines, newspapers into cognitive and leisure activities;
- time limitation for children's work at a computer, for watching TV;
- the increase of physical activity and transition of child activities to non-computer kinds of actions connected with physical activity, daily routine control, stimulation of interest to sport exercises;
- Prophylactic work within the bounds of the promotion of a healthy lifestyle and formation in the youth a system of alternative keenness, positive social-directed aims which could promote supporting and reserving a psychological health of a person;
- State control of services in the Internet causing cruelty and violence;
- Limitation of the Internet game advertisement;
- State support for the institution of family, development of education, culture and sport.

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