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ESPORTS AS ONE OF THE DRIVING FACTORS OF THE INFORMATION EVOLUTION OF HUMANITY

The article presents a brief review of the scientific literature on the role of eSports in the processes of informatization of society and the digital evolution of man as a species. The rapid development of new communication technologies is changing the lives of ordinary people in a specific digital environment. This prompts people to process an ever-increasing amount of information in a short amount of time and transform their mental strategies. The computerization of everyday life has led to the combination of virtual reality technologies with the principles of classical sports. The result of this synthesis was the emergence of eSports. Virtual reality provides unlimited possibilities for designing game activities and the structure of gamer characteristics. A wide selection of game parameters expands the mental topology of gamers of an eSports player. E-sports complements the information structure of the gamer's personality. Being in the electronic world leaves an imprint on a person's consciousness, behavior, outlook and culture. E-sports as an example of global digitalization is one of the driving factors of the information evolution of society.

***Keywords**: eSports, digital evolution, informatization of society.*

Formulation of the problem. Analysis of recent research and publications. The problem of human evolution is one of the most relevant directions of modern biological study that delineates patterns of development of the Homo Sapiens, the purpose behind his morphology, his adaptational mechanisms, the patterns of the historical development of the species, etc [1, 2, 3]. However, Homo sapiens as a species is a unique creature, since it combines the essence of a biological organism with

the characteristics of a social personality acquired over the course of its existence and nurture within its socio-cultural environment [4, 5]. Accordingly, the modern study of anthropogenesis is inextricably linked with the deep aspects of societal development, thus representing a single process – anthroposociogenesis [6, 7].

The urgent questions of anthropogenesis (such as the emergence and development of characteristic features of humans as a species) have, until recently, focused primarily on the features of phylogenetic transformations of the species. These used to be the main subject of the modern evolutionary biology scientific study [8, 9]. Lately though, as a result of appearance and constant expansion of significant volumes of information as well as the need to adapt to the ever-changing conditions of the informational space, the issue of human historical development became the main subject of the active scientific research within the sociologic, cultural, and philosophical disciplines. At this stage of society's development, people and their socio-cultural communities are powerful generators of information that they use to solve complex tasks of everyday life [10, 11]. The amazing development of information and communication tools, the computerization of all spheres of human activity, the emergence of new intellectual technologies inevitably transform human consciousness [12, 13]. The gradual growth of digitalization of society is one of the factors of the informational evolution of humanity and the genesis of a new human formation.

The purpose of the study was to analyze modern literature regarding the role of e-sports in the processes of informatization of society and the digital evolution of humans as a species.

Research materials and methods. The analysis of modern literature was carried out by processing scientific sources that are presented in the scientometric databases of PubMed, Scopus, Web of Science, Cochrane Library and others over the last 5 years. We used the search terms "eSports", "digital evolution of humanity", "Homo informaticus". By keywords, 543 works were found, from which 58 works were selected for literary analysis. The selection of primary sources was carried out as follows: first, the topic of the article was analyzed; if the topic corresponded to the direction of our research, the abstract was analyzed. If the abstract corresponded to the direction of our research, then the text of the article was subjected to analysis. Studies that corresponded to the purpose of our work were collected and critically analyzed.

Research results and their discussion. Human evolution is an irreversible and unidirectional historical development which, since the times of the first, now extinct, humanoid apes (australopithecines), has been accompanied by the continuous process of natural and artificial selection, the changes within the genetic composition of populations, and the formation of specific adaptive properties [14, 15].The process of anthropogenesis as formation modern physical type of a person under the influence of a complex of biological and primordial social factors led through some intermediate links before the appearance of the species Homo sapiens [16, 17]. Representatives of this species are distinguished from other taxa of hominids and humanoid primates by the formation of a discrete socio-cultural unit – the human personality, which has become radically different from their own ancestors and acquired a modern appearance [18, 19].

The result of the extremely complex process of anthropogenesis was the acquisition by man of specific features of anatomical and physiological organization characteristic only of his species (strong development of the cortex of the hemispheres of the cerebrum, a significant reduction of the olfactory lobes of the brain, opposition of the thumb, etc.), as well as cognitive abilities and language [20]. Modern human brain differs from that of humanoid apes in size, shape and the cortex organization, especially the areas of the frontal cortex responsible for complex cognitive tasks, such as social identification, use of tools, and language [21]. Accordingly, the formation and complexity of modern human’s cognitive features, such as cognition, imagination, memory, goal setting, abstract thinking, etc., are determined by evolutionary changes within the brain of human ancestors. This complexity is the result of the gradual improvement of the analytical-synthetic activity of the cortex/ cerebral hemispheres [22]. The process of human historico-evolutionary development was originally distinguished by exclusively organic nature of its implementation; on top of which, as a

result of societal development, the artificially created evolutionary factors were layered. Thus, gradually, the purely biological driving factors of human evolutionary transformation (survival, natural selection, hereditary variability) as means of the forced necessity for adaptation to changing living conditions and threats, began to be supplemented and replaced by socio-cultural factors (communal lifestyle, specialization, mentality, unique language features, production of tools, the use of fire for cooking, etc.) [23, 24, 25].

The key moment in the evolutionary development of humans as a species was the socio-cultural evolution, which was accompanied by the creation, development, and accumulation of a body of knowledge, skills, traditions, and abilities. The gradual transmission of cultural experience from generation to generation through education contributed to greater socialization of humans and the formation of their most significant difference from animals, which lies in the realm of human intellect, not the body, and is related to the ability to think, express one's own thoughts, and understand a conversation partner [26, 27, 28]. Thanks to the highly developed brain, humans as a species have acquired a high level of consciousness, and as a result, an excess of energy that allows humanity to transform natural energies, the environment, and to some extent influence the natural driving forces of evolution (restrict or alter the processes of natural selection within their own species as well as among representatives of other biological taxa) [3, 29].

Summarizing all of the above, it can be argued that modern humans, as a result of the development of biological matter, are the most complex variety of it, regardless of the level of organization of living matter being considered. This assertion holds true for Homo sapiens at the microsystem level (the complexity of molecular-genetic and cellular structure), the mesosystem level (perfection of tissue, organ, and organism structure), as well as the macrosystem level (complexity of population-species and socio-cultural relationships) [22, 30].

In the end, the specific characteristics of humans as discrete, separate biosocial units, as well as of human society as a whole, have provided humanity with the ability to globally transform the cycle of matter, energy, and information, thereby changing not only the biogeocenotic (ecosystemic) but also the biospheric level of organization of living matter. Thus, humans, as an integral part of nature, are the only unique living beings whose existence is influenced by general biological mechanisms of life regulation and who manage to, at the same time, actively and sometimes aggressively impact nature, shaping complex mutual feedback relationships.

However, most contemporary anthropologists believe that the evolution of Homo sapiens as a biological species is not yet complete. It's worth noting that, in recent times, the dominant role in this process has been played not so much by biological processes of selection and physical evolution but by the directions of human adaptation to society through the development of cultural tools, which shape the fundamental principles of artificial selection [31, 32]. Thus, the primary directions of further historical development of Homo sapiens lie in the socio-cultural realm and are exclusively facilitated by artificial means.

A review of social and philosophical sources on the construction of society and human existence within it allows us to conclude that reflection on the concept of "human and the paths of its evolution" has led to the emergence of new revolutionary constructs and concepts. Among them, we should mention the philosophical model of "Homo religiosus" (The Religious Man), built on the principle that religion is more than just an ethical code but rather a way of life and self-identification [33]. We cannot overlook the construct "Homo intelligens" (The Thinking Man) as the embodiment of the human of the future, who will take on the role of the "creator and bearer of information and knowledge," and through his existence bring about revolutionary transformations in the fields of information and technology [34]. Certainly, the essence, means, and content of human historical development as an individual member of society have always been the subject of philosophical discussions. However, the realities of modern life significantly differ from those of, for example, just 20 years ago due to the revolutionary development and deep penetration of various information technologies into human life. The comprehensive combination of processes of creating

and improving means and technologies of information influence, as well as the informatization and cybernetization of an increasing number of spheres of life, have shaped a specific highly reactive and dynamic socio-cultural environment [35, 36].

Today, humans live and develop in a society where information has become one of the main resources, a unique value on which a person's life depends in both direct and indirect senses. The rapid advancement of new information and communication technologies and their integration into everyday life radically transform the realities of modern existence, creating a powerful and dense information environment that forces individuals to process a growing amount of information in shorter periods of time and adapt their cognitive strategies accordingly [37]. The constant pressure of the information flow compels individuals to adapt to new realities, leading to the emergence of alternative forms of intellectual and sporting activities, as well as the creation of new means of communication within the human population. The powerful computerization of everyday life, combined with the fusion of virtual reality with the excitement and sanctity of traditional sports, through the hybridization of the physical and virtual worlds, has given rise to a revolutionary phenomenon known today as e-sports or electronic sports. Thanks to digital technologies, various aspects of the sporting experience have found entirely new expression in the almost limitless possibilities of e-sports. E-sports, over the course of its development, has become a unique social phenomenon and is now an integral component of physical culture and sports [38, 39], despite numerous heated debates about whether it can be considered a true traditional sport.

Just like in traditional, classic sports, electronic sports (e-sports) involve competition, excitement, and passion. At the same time, it requires e-athletes to maximize their physical and psycho-emotional resources to achieve a higher level of performance and sporting excellence. Similar to traditional sports, the specific tools of e-sports are methods of physical training that are based on competitive activities and preparation for them, during which the athlete's potential is assessed and evaluated. Achieving a high level of mastery in e-sports, as well as in traditional competitive sports, is unattainable without the ability to think strategically, work as part of a team, make quick decisions in stressful situations, and consider potential opponent analysis [40, 41]. All these qualities, skills, and abilities are another parallel between e-sports and classic forms of physical competitive activities, without which victory in sports is impossible.

The ever-increasing popularity of virtual games each year demands persistent improvement of both physical and intellectual professional skills from e-sports athletes. Every successful e-sports athlete dedicates at least 5-7 hours a day to training, while newcomers striving for a high professional level invest even more of their time [42, 43]. Given the strong and growing competition, e-athletes need to enhance not only their fine motor somatic skills and psycho-physiological characteristics (reaction speed, etc.) but also certain social skills (non-conflict behavior, stress resistance, etc.). Virtual reality offers limitless possibilities for constructing both gaming activities and the structure of an individual's personality due to the ambiguity, variability, and simulation of the online space. Accordingly, the arbitrary selection of any set of game parameters expands the mental topology of an individual. In virtual reality, a person represents themselves as a specific character, and virtual culture becomes a common socio-cultural practice of the subject, giving rise to a multitude of socio-cultural worlds and models of subjectivity [37, 44]. This leads to a unique modification and transformation of human consciousness, altering psychological qualities of the individual.

An objective analysis of various aspects of the impact of e-sports on the structure and functions of human society does not allow us to overlook the positive consequences of the development of this form of sporting activity. Competitions in the virtual world are among the safest and least traumatic forms of sports. As a result of regular training in e-sports athletes, the aging of cognitive abilities slows down, self-discipline and self-control are improved, visual and auditory memory is developed, fine motor skills of the fingers are refined, and more [44, 45]. From the perspective of the specificity of psychophysiological characteristics, regular involvement in e-

sports contributes to the development of logical thinking, deductive abilities, analytical, as well as critical, abstract, figurative, and unconventional thinking. Systematic training enhances the e-athletes' ability to predict outcomes, improves attention span, hones teamwork skills, and other social qualities, including mutual understanding, communicativeness, tolerance for others' mistakes, solving common tasks and problems, delegation of responsibilities, and more [46, 47]. As a result, both individual and group activities of e-athletes are improved in various social variations, leading to a better manifestation of acquired social qualities, which are the quintessence of purely human experience.

It is worth noting that e-sports competitions, organized on humanistic principles of fair play, foster a healthy competitive environment within the sports community with its moral, ethical, and moral norms, providing grounds for identifying talented and successful individuals. This can be considered one of the means of artificial selection, which is one of the tools in the socio-cultural evolution of modern humanity. Thus, the progressive development of cyber technologies and competitive sports serve as important components of the successful adaptation of e-athletes to the changing conditions of the social and informational environment [48, 49]. An important fact is that the social status of e-athletes and substantial financial rewards for their performances allow them to achieve a high level of financial freedom, which is also a significant motivating factor for systematic self-improvement [50, 51].

The significant practical value of e-sports should not be underestimated. The specific personality traits formed based on it (cognitive flexibility, computer literacy, high thinking speed, collaborative interaction in augmented reality, etc.) are becoming necessary and highly demanded in many other fields of human activity, ranging from economics and business (system administrators, analysts, etc.) to state security and defense (drone operators, developers of military technology software, doctors etc.) [52, 53, 54]. Thus, the development and proliferation of e-sports in society define and contribute to the development of specific skills and qualities in individuals engaged in high-tech processes and the management of highly complex systems.

Despite certain negative consequences of the spread of e-sports in contemporary society, it has firmly established its niche in the realm of complex information space in the modern world. As this sport becomes increasingly important due to the advancement of digital technologies and the sophistication of user culture, it gradually evolves and transforms the core values and cultural experiences of society as a whole.

The convergence of powerful information influence in the virtual environment with intense sports competition in the context of esports inevitably affects the biological essence of humanity, while simultaneously transforming the intellectual, emotional, and spiritual components of one's personality [55, 56]. The socio-cultural, philosophical, and economic aspects embodied in esports, in convergence with cutting-edge information technologies, demonstrate rapid development, signs of high reactivity, and flexible adaptability to society's needs, thus being considered one of the driving factors of anthroposociogenesis. Therefore, it's not surprising that the scientific and applied interest of the human community in the philosophical, social, and socio-cultural aspects of informatization in general, and esports in particular, has undeniably grown in recent years.

The rapid transformation of the information environment is largely determined by the increasing pace of technological changes and the acceleration of social dynamics. All of the above inevitably affects the evolution of humanity as a species and contributes to the emergence of a new theoretical construct - Homo informaticus (Informational Human) [57, 58]. The definition of "Homo informaticus" as a characteristic of a new type of personality is currently characteristic primarily of humanitarian disciplines. In contemporary biology, this categorical unit has not yet found its theoretical and practical niche, just as the concept of "informational anthropology" has not yet gained a corresponding status and fixed content. However, the existence of these philosophical concepts is already emerging, evolving, and acquiring new meanings through increasingly

widespread combinations of modern technologies, the volume and quality of information, and the driving forces of societal evolution.

Throughout most of the period of anthroposociogenesis, humans as a species gradually approached the transition to the level of Homo informaticus due to the emergence of social and spiritual needs for information. The imperative and driving factor for this transition was humanity itself. Additionally, the utilization of new knowledge and information to achieve desired results is an integral condition for ensuring labor and adaptation to life in society. It's important to remember that humans themselves are powerful generators of information and essentially represent a unique repository of biological, physical, and socio-cultural data. All of these elements form the basis of the specificity of "Homo informaticus," which, at this evolutionary stage of human development, serves as a theoretical heuristic model.

However, despite the purely predictive nature of the "Homo informaticus" model, the information-transformed type of human could indeed become a new anthropological unit. The "Homo informaticus" model is designed primarily to explain the specifics of human informational existence in modern high-tech society. Naturally, the transformation of Homo sapiens into Informational Humans already leads to and will continue to lead to both positive and negative consequences of advancing digitization. However, a detailed examination of these research tasks is not the focus of our article at this time.

Conclusion. Cybersport is an integral part of the digital environment and complements the information structure of a person's personality. Being in the electronic world leaves an imprint on the consciousness, behavior, outlook and culture of human society. In modern conditions, adaptation to the virtual space and the formation of a suitable lifestyle are already realities for cyber sportsmen. Basic biological instincts and acquired socio-cultural skills force humanity to lead an informational lifestyle. All of the above will contribute to the realization of the informational evolution of Homo sapiens in the future.

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Imas Ye.V., Lukyantseva H.V., Pastukhova V.A., Svirin Ya.R., Skorobogatov A.M., Sosnovski V.V., Zavalniuk V.L. ESPORTS AS ONE OF THE DRIVING FACTORS OF THE INFORMATION EVOLUTION OF HUMANITY

Abstract and problem. *In today's society, information is one of the main resources. The rapid development of new information and communication technologies is transforming the lives of everyday*

people in a specific digital environment. It encourages people to process an increasing amount of information in a short period of time and transform their mental strategies.

Purpose. *The purpose of our article was to analyze modern scientific literature regarding the role of e-sports in the processes of informatization of society and the digital evolution of humans as a species.*

Research methods. *The analysis of modern literature was carried out by processing scientific sources that are presented in the scientometric databases of PubMed, Scopus, Web of Science, Cochrane Library and others over the last 5 years. We used the search terms "eSports", "digital evolution of humanity", "Homo informaticus". By keywords, 543 works were found, from which 58 works were selected for literary analysis. The selection of primary sources was carried out as follows - first, the topic of the article was analyzed. If the topic corresponded to the direction of our research, the abstract was analyzed. If the abstract corresponded to the direction of our research, then the text of the article was subjected to analysis. Studies that corresponded to the purpose of our work were collected and critically analyzed.*

Main research results. *The computerization of everyday life has led to the combination of virtual reality technologies with the principles of classical sports. The result of this synthesis was the emergence of eSports.Virtual reality provides unlimited possibilities for the design of gaming activities and the structure of the gamer's characteristics. A wide selection of game parameters expands the mental topology of an eSports player. The modification and transformation of intellectual characteristics changes the knowledge and psychological strengths of gamers.*

Scientific novelty of research results. *Basic biological instincts and acquired sociocultural skills force humanity to lead an informational lifestyle. E-sports complements the information structure of the gamer's personality. Being in the electronic world leaves an imprint on a person's consciousness, behavior, outlook and culture.*

Conclusion. *Adaptation in the virtual space and the formation of a suitable lifestyle for e-athletes is already a reality. Therefore, e-sports as an example of global digitalization is one of the driving factors of the information evolution of society.*

Keywords: *eSports, digital evolution, informatization of society.*

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