

Influence of High-Tech Society on the Development of Modern Educational System

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The authors consider such issues as (1) forming a valid educational system in a high-tech world; (2) forming the principles upon which it should be built; (3) considering the primary subjects of interaction with high-tech educational system; (4) imposing the effective methods, tools, development technologies, and self-development techniques of subjects in the context of the educational system; (5) defining what is possible to entrust to machines in a digital educational system, in comparison with humans; (6) evaluating the digital skills education efficiency; (7) defining methods that provide the efficiency of educational influence. The primary method of the research is the analysis and generalization of the national and foreign scholarly works in terms of what are the features of the evolution of the educational system in a modern high-tech society. The authors conclude that the key tendency in the development of educational technologies consists in the need to expand the existing formats of educational courses for the development of digital skills with technologies that use mobile learning and artificial intelligence programs.

Keywords: VR/AR technologies, mobile internet, digital technologies, high-tech society, education for the digital economy, educational market, digital age didactics

INTRODUCTION

Problem

Nowadays, it is rather evident that the education system is a social stabilization factor and economic growth in modern high-tech society (Sberbank Corporate University, 2017; 2018; The Atlas of New Professions, 2015; Zakharov & Zakharova, 2009). The social conscience has established the demand for

investment attractiveness of education. Therefore, there is a dependence on implementing innovations in education, the merging of science, production, and education.

The international market for educational services grows at a serious pace while being highly competitive. These factors are due to the following – education primarily ensures the creation of modern technologies in the country and the consolidation of the nation as “high-tech.” Besides, education serves as a mechanism for successfully promoting the citizens in the global technology and labor market. Therefore, it becomes evident that such a social institution as education is rapidly becoming the critical factor of economic strategy and the geopolitics mechanism in gaining a foothold in current high-tech markets.

Issues

Hence, the authors need to address the following issues:

- Forming a valid educational system in a high-tech world; Forming the principles upon which it should be built;
- Considering the primary subjects of interaction with high-tech educational system; Imposing the effective methods, tools, development technologies, and self-development techniques of subjects in the context of the educational system;
- Defining what is possible to entrust to machines in a digital educational system, in comparison with humans;
- Evaluating the digital skills education efficiency; Defining methods that provide the efficiency of educational influence.

MATERIALS AND METHODS

The authors carry out the analysis of sources based on a systematic approach, which, from the author’s point of view, is not a sole method but rather a set of methods. It is a combination of the following consistent features: (1) integrity (properties of elements of the whole system cannot be reduced to the sum of the properties of the system elements), (2) structural properties (properties of the whole system can be described through the structure, networking and communication elements), (3) interdependence (interconnectedness and interdependence of elements of the entire system), (4) hierarchy (each part of the system is a system itself), and (5) multiplicity or variability of system descriptions (due to the complexity of the system, it requires the use of various description methods and models). This combination makes it possible to identify different layers, levels, aspects, projections of the studied system, which, in turn, ensures the choice of a valid method of analysis for each element of the system. This formula reflects direct and inverse relationships between all elements and the special, dual, or triple nature of the object (material, figurative, and spiritual (ideal) sides). While analyzing the impact of high-tech society on the development of the modern educational system, the authors believe that modern production is characterized by a dual, “creative-destructive” nature. This perspective describes the nature of modern social life, which consists in demonstrating both virtue and disaster, development and degradation (these are two ontologically and epistemologically dialectically connected and inseparable sides of the same process). The authors set to solve the earlier stated issues to identify the prospects for the development of the educational system in minimizing the existing risks of a high-tech society.

The primary research method is the analysis and generalization of the national and foreign scholarly works (Andreeva et al., 2018; Kupriyanovsky et al., 2017; Rybakov, 2008; Zakharov & Zakharova, 2009) (presented in the References section, as well as corporate websites of international organizations and platforms: ATD, BCG, CEB, Cisco, Coursera, EFMD, European Commission, European Union, Google, HSE, IBM, IFR, IMD, ITU, KPMG, McKinsey, OECD, Sberbank Corporate University, UNESCO (Association for Talent Development, 2018; Boston Consulting Group [BCG], 2017; Carretero, Vuorikari, and Punie, 2017; Cisco, 2017; Corporate Executive Board [CEB], 2016; Coursera, 2018; European Commission, 2018; European Foundation for Management Development [EFMD], 2018; Google, 2018; HSE, 2017; IBM, 2018; IFR, 2016; IMD, 2018; ITU, 2017; KPMG, 2015; McKinsey Global Institute, n.d.

; OECD, 2018; Sberbank Corporate University, 2018; UNESCO, 2017) in terms of what are the features of the evolution of the educational system in a modern high-tech society.

RESULTS

The analysis of the literature mentioned above illustrates that currently, there are evident tendencies in changing value priorities that determine social development. Formerly, the system of educational guidelines aimed at preserving traditions. Nowadays, there exists the impermanence constancy of the innovative policy of education. There are such well-known approaches as (1) competence-based, (2) humanistic, and (3) personality-oriented. Besides, there are developmental teaching and identity development methods. One has established the concept of an educational environment, which is characterized by digitalization and technologization. Social partnership and the increasing role of society in development have become mandatory (Zakharov & Zakharova, 2009). The authors actualize a fundamentally different nature of the (1) young person's formation, (2) his self-determination for existence, and (3) his development pathway. It is impossible to resolve such issues by only changing educational methods and techniques. One requires a fundamentally different methodological basis for the development of educational theories and practices. Solely this will allow one to determine the essence of qualitative transformations of educational goals and technologies in the educational system.

The authors believe that it is crucial to build a valid educational system in a high-tech world based on the fact that a person must understand their existence in the broadest sense.

Currently, there is evidence that education is a multidimensional system. There often occurs a misconception when the educator presents some part of education as integral without conducting a multi-level methodological understanding. It inevitably leads to errors (Zakharov & Zakharova, 2009).

The rapid changes in society and constant educational reformation can put to risk the uniqueness of a person, their individuality. The issue of interdepending science, a young person's life, superficial knowledge, and deep insight arises. In a high-tech society with its universalization, one sets themselves to create a digital educational system that can develop a personality.

It is evident that by the end of the last century, the driving forces of the reproductive educational system had lost their methodologically correct settings.

DISCUSSION

By forecasting educational, social, and professional changes, it is logical to expect changes in the education system to create personalized personal growth programs based on spontaneous activity. Then the young person obtains much more significant educational results. Philosophical and pragmatic aspects of a young person's development in the digital educational system make one take into account the fact that the approach to the absolutization of the subject of knowledge is forever lost; The understanding of the world as a set of significantly different cultures, different types of thinking, and styles of existence prevails. Such cultural and ideological issues impose new challenges on human education and personal education and require new personality development methods. The most urgent concern appears in the process of educating a person capable of living in an open world, which is characterized by a clash of different cultures, instability, the opposition of ethnic groups, religions, and forms of perception of this world.

The 21st century is characterized by high-tech information society. The importance of scientific knowledge and information as the essential factors in developing the education system is growing. Specifically, the professional development of a young person in a high-tech information society requires profound transformations in terms of providing an opportunity to develop internal cooperation between students themselves and build cooperative networks for professional support to improve professional skills. A modern educational system should provide a comfortable environment for a person who exists in the information fields. It is important to focus not on the amount of knowledge (although the knowledge itself is the foundation) but on a set of skills for obtaining, understanding, processing, and turning the obtained knowledge into a new type of knowledge.

Mass digitalization is already present in people's lives as an integral part. All sectors of the economy have been taken over, and approaches to the organization of society, professional activities, and people's lives have changed. COVID-19 has completed the process of convincing people of the inevitability of digitalization in education. People are immersed in a worldwide data system.

The International Federation of Robotics (IFR) has shown that production automation saves costs from 15% to 90% per cycle range for various industries. Such a sharp increase in economic efficiency by using robots will inevitably lead to their universal use (IBM, 2018). BCG (Boston Consulting Group) estimates that by 2025 (Association for Talent Development, 2018; BCG, 2017), the robotics market will amount to about \$87 billion in volume. It is indisputable that such dynamics are set by a significant decrease in prices in this area.

Microsoft (2018), OECD (2018), and UNESCO (2017) have estimated that currently, 29% of the global production uses automation. In contrast, by 2022, the share of algorithms and machines in the work process will be 42%, and by 2025–52%. Robots will do reasonably more work for people, but they will not perform all tasks, only part of them (less than 25% of jobs will be automated by 70% or more).

Major changes with the robotics development will occur in at least four areas where demand will increasingly grow, such as the following:

- Industrial and consumer technologies (e.g., smart energy networks, their AI and software for households and cities; development and production of self-driving vehicles for the urban environment; production of renewable bioengineering materials);
- Personalized services (e.g., services for personalized education, health care, development of professional skills, entertainment, etc.);
- Virtual environments (e.g., virtual reality, augmented reality, social networks, etc.);
- Creative processes (e.g., creating new knowledge, obtaining new products based on artificial intelligence technologies, various software for virtual reality, etc.).

According to PwC (PricewaterhouseCoopers) (OECD, 2018), the lack of qualified IT professionals is a major problem in implementing digital projects for production companies. In accordance with the survey results, 60% of respondents in the world and 56% in Russia state the evidence of the lack of IT professionals with the required qualifications, which, in their opinion, is a severe problem. Among the most popular competencies are the development of cyber-security programs, business development using modern network management technologies, and user-oriented data protection.

It is rather evident that employees with high digital competencies create an essential competitive advantage for companies. Several studies (IFR, 2016; ITU, 2017; Microsoft, 2018; Morrison, 2017) show that firms, so-called “digital champions,” become successful in their business for the following reasons:

- They use the most effective business models that meet the modern needs of the high-tech digital market;
- Their products have a short entry into the market because they use digital marketing and techniques for creating start-up companies;
- They use technological platforms and therefore have a more efficient cost structure;
- High-quality digital products allow companies to invest in digital talent;
- Personalized offers allow consumers to have a high degree of satisfaction with the quality of products.

Also, an important position is (1) stability under the influence of the volatility of phenomena and the uncertainty of the events, (2) the competence of adaptability, (3) systemic and critical thinking, and (4) stress management skills.

CONCLUSION

In a high-tech society, one requires a fundamentally different methodological basis to develop educational theories and practices. It will allow one to determine the essence of qualitative transformations of the goals of education and technologies of the educational system. Simultaneously, a person determines

the process and the direction in which values are re-evaluated, the creative development of a new society, etc.

Nowadays, refusing to absolutize the subject of knowledge, it is crucial to perceive the world as a set of significantly different cultures, different types of thinking, and styles of existence. Such cultural and ideological issues impose new challenges on a young person's education and personal education and require new personality development methods. The most urgent concern exists in the process of educating a person capable of living in an open world, which is characterized by a clash of different cultures, instability, the opposition of ethnic groups, religions, and forms of perception of this world.

To develop the goals of modern education, one must understand that major changes with the robotics development will occur in at least four areas: (1) industrial and consumer technologies (e.g., smart energy networks, their AI and software for households and cities; development and production of self-driving vehicles for the urban environment; production of renewable bioengineering materials); (2) personalized services (e.g., services for personalized education, health care, development of professional skills, entertainment, etc.); (3) virtual environments (e.g., virtual reality, augmented reality, social networks, etc.); (4) creative processes (e.g., creating new knowledge, obtaining new products based on artificial intelligence technologies, various software for virtual reality, etc.).

In education, it is unacceptable to accept the existing bias, the essence of which is that the emphasis is only on limited computer literacy to the detriment of the formation of soft skills that determine communication and cooperation in the digital environment. The authors emphasize that the following competencies should be formed: (1) basic digital literacy; (2) stability under the influence of volatility; (3) IT skills that help to cope with the increasing information flow; (4) communication skills that ensure effective interpersonal interaction; (5) emotional intelligence.

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