

## MODERN SCIENCE AND EDUCATION IN THE KNOWLEDGE SOCIETY: PHILOSOPHICAL ECONOMICS, PSYCHOLOGICAL APPROACHES

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**Summary.** In the center of author's attention there is the problem of forming a modern education system in the knowledge society. Education system should be considered in a context of a systematic method of approach, the essence of which is that relatively independent components are considered not separately, but in their interconnection, in the system with other components. In the center of the author's attention there is a fundamental problem of the system interaction between modern science and education in the knowledge society.

In the modern world, there is a radical difference between science and traditional forms of culture – scientific knowledge plays a significant role in solving technical, industrial, and organization management problems. The majority of people's fields of activity in the society are becoming rationalized and coordinated. Science and higher education have the same social functions: the manufacture and transfer of knowledge. Knowledge becomes a basis for the organization of the people, a necessary condition of their joint activity. In the increasing degree, it acquires the significance of an integrating factor in social life, substituting traditional forms of people's association.

**Key words:** Science and higher education, system interaction between modern science and education, social functions, transfer of knowledge, the knowledge society.

### Introduction

What are the characteristic features of the current state of knowledge as a general area of science and education?

The processes of scientific-technical changes led to the formation in the second half of the twentieth century, the so-called information society (Ursul, 1975; Webster, 2004). Information component leaves its mark on all aspects of life, including the sphere of science and education (Neimatov, 2002; Leonov, 2004). On what ba-

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sis is the company called "news"? asks Zamyshlyayev: "The exchange of information between people has always existed. The phases of information exchange in the historical process are the following: verbal, written, book, computer. <...> The totality of the processing of any information by technical means, obviously, is the Foundation of the information society. And widely-used term "Informatization", "computing" acknowledge the dependence of the contained concepts on the degree of development of technical, material media" (Zamyshlyayev, 2005, p. 90). In other words, the emergence of the concept of "information society" is associated primarily with the impact of modern information technology on the development of the social organization of society. The term information society (according to Webster, 2004; Levin, 2004; Mayer, 2012) refers to a society in which the majority of citizens participate in the process of creating, collecting, storing, processing, or distributing information.

### **The idea of information society**

The concept of information society is fairly well developed, but continues to be filled with new content in connection with the advent of all the new features of this civilization. The beginning of formation of the information society is considered to be the statistical report, which appeared in the late 1950s, the Department of Commerce of USA, showing that for the first time in the history of the number of employees exceeded the number of production workers. The new state of social development was characterized as "post-industrial" (D. Bell), "technology" (J.P. Grant), "programmable" (A. Touraine), "postbourgeois" (J. Lithium), "postpatriarchal" (Q. Risman), "the third wave", "superindustrial" (O. Toffler), "post-capitalist" (R. Dahrendorf and others). In the works of such authors as D. Bell, O. Toffler, E. Masuda, M. Castells, P. Drucker and other researchers optimistic prospects for human development were associated with the recognition of the increasing role of theoretical knowledge, information and services (in the broad sense) in the modern world (Masuda, 1981, 2006; Drucker, 1993, 1993a; Castells, 1997, 1997a, 2000, 2001, 2004; Stern, 2001; *The Information Society*, 2014).

Speaking about the knowledge society, first and foremost, as a rule, refers to the importance of scientific and scientific and technical expertise for all aspects of the transformation of social life (Sycheva, 1984; Titova, Latuha, 2007; Hoffmann, 2008).

Let us note that the modern knowledge of mankind represents a huge file of information which is difficult to comprehend in detail and estimate expertly. In most cases, in relation to any separate person, information of various kinds turns out to be not only superfluous, but also, in its certain part, harmful and dangerous. Each concrete person has found him (or her)self among the immense amount of information related to him(or her). In other words, no single person today can master the entire corpus of social information. As a result, differentiation and specialization of knowledge is only amplifying.

More and more, even the experts from close areas speak different scientific languages and cease to understand each other. In other words, the total amount of

information and knowledge today accrues like an avalanche and can be characterized as an information explosion.

The phenomenon of social information at the beginning of the third millennium turns out to be an extremely complex one and possessing a set of special characteristics (Inozemtsev, 1999; Liberska, Farnicka, 2014). This complexity and polysemy of information have given the reason to a number of scientists to call the modern society "information society" (Pryanikov, 2006).

Knowledge is considered by modern scientists more and more broadly: not only in historical culturological and research-on-science aspects, but also as the main intellectual base of the newest, innovative technologies of the XXI century – the technologies of humanitarian, social, and technological directions (Gaponenko, Orlova, 2008; Latuha, Pushkarev, 2013; Latuha, Pushkareva, 2014).

Firstly, knowledge is the abilities, skills, and experience received by means of study or practical usage of the activity algorithms; secondly, it is the information important for the cognitive and practical activities; thirdly, it is a special gnoseological unit of the attitude of the person to the real world.

What is the correlation between the educational and scientific knowledge? By the end of the second millennium of our era, there has been formed a disciplinary structure of knowledge between science and education (Lednev, 2002; Leonov, 2004). Furthermore, the disciplinary organization of educational knowledge is an approximate copy and analogue of the disciplinary structure of science.

Both the disciplinary structure of educational knowledge and the education contents are subjects to the principle of conformity with the science structure and contents (Semenov, Semenov, Jurevich, 2004). As a result, the knowledge of the modern person is sort of separated into pieces; there is no integral knowledge in person's mind. Moreover, by the conformity principle, the educational knowledge always lags behind the scientific one.

This situation has been worrying scientists and philosophers for a long time. It is aggravated by the fact that there is no unity and no scientific disciplines themselves (Egorov, 1997). In science, there takes place continuous "splitting" of theories and their differentiation.

## Conclusion

Objectively, the division into disciplines in science is caused by a hierarchical structure of material and spiritual realities, in other words, of the very objects of science. The main reasons causing the difference in the growth rate of knowledge and the scientific and educational information are the following.

Firstly, any subsequent generation of people cannot, at the existing ways of training, master the volume of knowledge and information, exceeding psycho-physical and physiological capabilities even of the most gifted individuals (but they are limited in their capabilities too).

Secondly, the physical time of training has an upper limit and should be, in principle, constant for each category of pupils or even decreasing.

Thirdly, there are no special technologies of grasping the entire volume of knowledge by each individual (Segal, 2014; Sudorgina, Thurley, Pushkareva, 2014). The general and group technologies (techniques) are those that are working.

What knowledge can and should become the basis of modern science and education? The academic community as a decisive factor of modern integration of scientific and educational knowledge emphasizes its system qualities. At the given stage of its historical development, the mankind masters science in an essentially new way and makes its achievements serve its interests, its practice of industry and management, and development of social and spiritual life of the society.

Moreover, this universality in science application and "pragmatization" of the scientific knowledge demand nowadays the development and application of new methodological means of the appropriate level. Those are the urgent needs of development of the complex scientific and practical knowledge.

## References

- Blauberg, I.V., Yudin, E.G. (1973). *Formation and the essence of a systematic approach*. Moscow, Nauka Publ., 270 p. (In Russian).
- Castells, M. (1997). *The Power of Identity. Vol. II of The Information Age: Economy, Society and Culture*. Oxford, 584 p.
- Castells, M. (1997a). *The Rise of the Network Society, With a New Preface. Vol. I: The Information Age: Economy, Society, and Culture*. Oxford, 461 p.
- Castells, M. (2000). *The Information Age: Economy, Society and Culture*. Moscow, HSE Publ., 468 p. (In Russian).
- Castells, M. (2001). *The Internet Galaxy. Reflections on the Internet, Business and Society*. Oxford UP, 304 p.
- Castells, M. (2004). *Internet Galaxy: Reflections on the Internet, business and society*. Yekaterinburg, U-Factoria Publ. (In Russian).
- Drucker, P.F. (1993). *Innovation and Entrepreneurship: Practice and Principles*. 1-st Harper Business ed., N.Y., Harper Business Publ., 293 p.
- Drucker, P.F. (1993a). *Post-capitalist Society*. N.Y., Harper Business Publ.
- Egorov, Yu. L. (1997). *Systems principle: the nature and function in the knowledge*. Moscow, Exceedingly Publ., 175 p. (In Russian).
- Gaponenko, A.L., Orlova, T.M. (2008). *Knowledge Management. How to turn knowledge into capital*. Moscow, Eksmo Publ., 400 p. (In Russian).
- Hoffmann, A.B. (ed.) (2008). *Traditions and innovations in modern Russia: the sociological analysis of interaction and dynamics*. Moscow, 543 p. (In Russian).
- Il'inskii, I.M. (2002). *Educational Revolution*. Moscow, Moscow Humanitarian-Social Academy Publ., 592 p. (In Russian).
- Inozemtsev, V.L. (1999). *Broken Civilization: Preexisting conditions and opportunities in post-economic consequences of the revolution*. Moscow, pp. 39-41. (In Russian).
- Knyazev, N.A. (2008). *Philosophical problems of essence and existence sciences*. Monograph. Krasnoyarsk, Siberian State Aerocosmic University Publ., 270 p. (In Russian).

- Kostyuk, V.N. (1997). *Information as a social and economic resource*. Moscow, Magistr Publ., 48 p. (In Russian).
- Latuha, O.A., Pushkarev, Y.V. (2012). Economic development of modern society and the problem of innovation staff training. *Novosibirsk State Pedagogical University Bulletin*, 5, 50-56 (In Russian).
- Latuha, O.A., Pushkareva, E.A. (2014). Business knowledge society: scientific and educational development priorities (overview of the problem). *Novosibirsk State Pedagogical University Bulletin*, 5, 99-110, doi: <http://dx.doi.org/10.15293/2226-3365.1405.11>
- Latuha, O.A., Pushkarev, Yu.V. (2013). Role of higher educational institutions in creation of innovations. *Novosibirsk State Pedagogical University Bulletin*, 3 (13), 66-72 (In Russian).
- Lednev, B.C. (2002). *Science education*. Moscow, 120 p.
- Leonov, A.M. (2004). *Science of complexity in the postmodern era*. Monograph. Yakutsk, Yakutsk University Publ., 560 p. (In Russian).
- Levin, A.I. (2004). Sustainable development and the information society: trends, challenges proto-insufficiencies. *Philosophical sciences*, 9, 5-16 (In Russian).
- Liberska, H., Farnicka, M. (2014). Processes which support the creation of an environment conducive to learning. *Novosibirsk State Pedagogical University Bulletin*, 4, 7-18, doi: <http://dx.doi.org/10.15293/2226-3365.1404.01>
- Masuda, Y. (1981). *The Information Society: as Post-Industrial Society*. World Future Society. Washington, DC: World Future Society.
- Masuda, Y. (2006). *Information society as post-industrial society*. Moscow, 587 p. (In Russian).
- Mayer, B.O. (2012). Technology Platform "Education": ontological analysis. *Novosibirsk State Pedagogical University Bulletin*, 2 (6), 36-47 (In Russian).
- Neimatov, Y.M. (2002). *Education in the XXI Century: Trends and Forecasts*. Moscow, Algo-rhythm Publ., 480 p. (In Russian).
- Pryanikov, B.P. (2006). *Methodology theories of labor and capital: a retrospective of the new time and the prospect of the knowledge economy*. Monograph. Chelyabinsk, SUSU Publ., 224 p. (In Russian).
- Pushkarev, Y.V., Pushkareva, E.A. (2012). Development of education in the new system of values of global society. *Novosibirsk State Pedagogical University Bulletin*, 4, 20-25 (In Russian).
- Segal, B.A. (2014). Polysemy of reorganizations of the higher school. *Novosibirsk State Pedagogical University Bulletin*, 2, 50-61, doi: <http://dx.doi.org/10.15293/2226-3365.1402.05>
- Semenov, E.V., Semenov, N.N., Jurevich, A.V. (eds.) (2004). *Science in Russia: current status and strategy for recovery*. Series "Research reports". Moscow, Logos Publ., 384 p. (In Russian).
- Stern, N. (2001). *The World of Knowledge*. Accessed, <http://filosof.historic.ru/books/item/f00/s00/z0000958/st000.shtml> (Available at: 15.08.14).

- Sudorgina, L.V., Thurley, R., Pushkareva, E.A. (2014). Educational system of modern school (the sight from Russia and the Great Britain). *Novosibirsk State Pedagogical University Bulletin*, 2, 7-16, doi: <http://dx.doi.org/10.15293/2226-3365.1402.01>
- Sycheva, L.S. (1984). *Modern processes of formation of Sciences: the experience of empirical research*. Novosibirsk, 160 p. (In Russian).
- The Information Society. The Knowledge Society*. Accessed, <http://vecam.org> (Available at: 15.08.14).
- Titova, V.A., Latuha, O.A. (2007). Modern aspects of innovation governance of higher education institutions. *Management in Russia and abroad*, 6, 42-52 (In Russian).
- Ursul, A.D. (1975). *The problem of information in modern science*. Moscow, Nauka Publ., 386 p. (In Russian).
- Webster, F. (2002). *Theories of the Information Society*. Second Edition. L., Routledge.
- Webster, F. (2004). *Theories of the Information Society*. (Ed.) M.V. Arapova, N.V. Malykhina, E.L. Vartanova. Moscow, Aspect Press Publ., 400 p. (In Russian).
- Zamyshlyaev, V.I. (2005). Humanities meanings Information Society. *Philosophy of Education*, 1, 85-92 (In Russian).