

ACHIEVEMENTS AND DRAWBACKS OF INNOVATIVE EDUCATION IN TECHNOINTELLECTUAL SOCIETY

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Abstract. In the article a special attention is paid to possible side effects of modern educational innovations characteristic of technointellectual society. In this context the author summarized the basic principles of further right-minded pedagogical innovations generation. Firstly, the expediency. Innovation has to solve a particular problem. Secondly, spiritual, political, societal, physiological and physical safety. Thirdly, – the need for which follows directly from the second principle – interdisciplinary expertise. There should be involved not only the pedagogues, but also psychologists, doctors, philosophers, futurists, sociologists and other experts. Fourthly, the duration of the preparatory phase should be as long as possible, as the negative side effects may be delayed. As the result of the use of these principles we will get the real knowledge society innovations.

Keywords: innovations; innovative education; technointelligence; technointellectual society.

According to I.A. Brizhata and V.A. Tsykin, “now education comes to the first place among the factors in the development of mankind”. In this context, they even make the next focus, justifying the previous thesis: “the role of knowledge in economic development of the world is growing rapidly, displacing the importance of the means of production and natural resources” (Бріжата, 2012: 4). In general, many philosophers and pedagogues at the beginning of the third millennium emphasize the importance of education and its role in the development of man and mankind primarily because of the technological changes in our being, becoming of the information society or the knowledge society. So how much does the present planetary society adequately meet the historical need for an educated, cultural, morally developed person who can competently take responsibility for the new direction of development, for technointellectualization of anthroposphere?

Analyzing the works of such scholars as for example, G. G. Malinetskiy, A.V. Podlazov, A.A. Leontiev, V.A. Tsykin, O.M. Karpenko, M.D. Bershadskaya, Yu.A. Voznesenskaya and many others, we can say that at the turn of the millennium in technointellectualized (informational, computerized, telecommunicational)

society education systems are far from optimum (meaning of course not the ideal, but the version most agreed with the educational and general social practice) as in “developing countries”, as well as in developed countries. For example, in the U.S. the results of international studies observed low levels of functional literacy of pupils (Карпенко, 2008: 18) – they are the people who are least been influenced by “old” educational technologies.

Of course, these planetary significant, we can say the global challenges of education are not left unattended by philosophers and educators. Education and directions of its development, organization, content and educational technologies are in the midst of discussions, “which unfolded in our time in intellectual circles” (Цикин, 2009: 4). It deals with the development of a new philosophy of education – education that would ensure the comfort of human existence in the XXI century. The problem of the development of philosophy of education gradually argues as a strategic problem of the modern world education policy. The philosophy of education at this stage can be defined as a branch of scientific knowledge, which develops metapedagogic problems of education in the context of philosophical reflection and understanding of the essence, nature and meaning of human existence (Фомичева, 2004).

Philosophy of education was highlighted as a separate branch of research in the late XIX century through the works of E. Durkheim. Philosophy of education performs its functions based on different approaches. For example, within the historical approach (e.g., M.A. Galaguzova, L.A. Stepashko) there occurs the analysis of historical periods of pedagogical knowledge and philosophical interpretation of the progress in the field of pedagogy. Within another approach that can be described as philosophic-pedagogical (B.G. Kornyetov, O.G. Prikot etc.), pedagogy is seen through the prism of different paradigms, there is a central concept of polyparadigm education.

Innovations aimed at improving the quality of education are constantly being introduced in the teaching practice. This occurs in large quantities, is theoretically worked out within the current (interpreted generalized) paradigm of innovative education that serves the modern historical period of pedagogical knowledge (historical approach) and the dominant paradigm (philosophic-pedagogical approach, paradigmatic). But, despite this, the problems in the education system by and large are not getting smaller. Of course, some problems can not be solved by the efforts of the only philosophical and pedagogical community. However numerous other problems which are still not solved, problems largely related to the internal logic of the education system, indicate that the crisis in education still can not be overcome by no means due to a lack of quantification of new ideas in general, a lack of innovations.

Perhaps all existing, growing array of philosophical and pedagogical knowledge requires correction in its basic notions that will allow to use it – and what else

would appear here – more effectively? To answer this question by metatheoretic analysis the author will attempt to clarify the heuristic potential of innovative education conceptions in technointellectual society by metatheoretic analysis.

Under an innovation in education there should be understood a novelty, designed to address the problem situation in order to optimize the educational process, increase its quality, organize favorable environment for pupils and students learning (Цикин, 2014: 209; Леонтьева, 2006: 83). Social innovations are of particular importance in this respect in the field of university system management (Башарина, 2009: 1107), since in high school in the educator's activity must take place both educative process and the actual scientific work that goes beyond the creation of new in pedagogy – such as the creation of new theories in physics, linguistics, psychology and so on. It is in the higher educational institutions where science and education connectivity appears very thoroughly.

Let us focus also on the need to improve the quality of education caused by the new general scientific and broader social context; increasing academic mobility (Майер, 2009: 102), which at the same time should not promote “brain drain” from the state, so academic mobility is advisable to be accompanied with a number of relevant restrictive and broader – preventive measures, including financial incentives; problems of integration into the global research and education space while preserving the time-tested traditional domestic value orientations in social and human sciences; creating as realistic as possible optimal in economic terms educational systems within which at the same time the role of social sciences would not be underestimated, there would be educated citizens, patriots; deepening of relations between different levels of education. Among other things the provision of innovative character to education is intended to promote the resolution of this issues.

Can one identify the main catalyst (basic catalysts) of the modern boom of innovations in education? If you answer that innovations are caused by social needs, then the answer would be too common and of little concrete substance. If you say that innovations catalyst is the development of science and technology, then we observe science and technology progress influence onto education a hundred years ago or more. But turn to the statement of I. Yu. Alekseeva, V.I. Arshinov, V.V. Cheklyetsov: now “...one should all the philosophical seriously take the discussion of issues not only of human adaptation to the technosphere of our existence, but also the co-evolution of man, who is more and more technologized, with technosphere, that is more and more anthropologized” (Алексеева, 2013: 12). In this context, changes in general and innovations in particular become an integral part of modern educational processes. And among them computerization, informatization are called the main trends of upgrading the educational process (Цикин, 2012: 224 – 225). And here it is especially important not to leave out of account the wide social context: the real and potential impact of technointelligence on man, planetary society in all

spheres of life (economic, social, political, and, as the crown of all things, spiritual) can not be overemphasized.

Information and communication technologies are crucial at all levels of the educational system. In all fields of study information and communication technologies (ICT) perform both functions of tools and objects of knowledge. Innovations in these technologies carry out a direct impact on the development of techno-science "...in all areas of activities of society. ...information and communication technologies belong to the class of innovative technologies that provide rapid accumulation of intellectual and economic potential – strategic resources to ensure the sustainable development of society” (Демкин, 2007: 23).

The feature of ICT is their versatility, they are a tool that is used in all branches of knowledge: natural, human, social and technical sciences. Thus, the innovative nature of ICT has a direct impact on other disciplines, forming a worldview of a young professional, improving the didactic and methodological knowledge representation, enhancing the capacity for perception and generation of knowledge, thereby bringing innovative element in the comprehensive development of the individual.

In general, in the context of education ICT provide an unprecedented opportunity to speed up the search and information transfer process, to transform the character of intellectual activity, automate human work (Демкин, 2007: 23). It is now difficult to imagine the work of a scholar-teacher, a student without computer information and communication tools. Electronic conferences, presentations; checking for originality and plagiarism through the site “antiplagiat” and similar sites, programs; access to electronic databases; international student science carried out through the Internet. These and other areas of application of technointelligence have various advantages, such as visualization, interactivity, speed of information exchange etc. Planetary computerization increasingly enters school too.

How, for example, says Ye.A. Naumkina, numerous studies of the problem of education informatization mainly focused on new opportunities, prospects for the use of ICT to improve the educational process. However, further a deeper understanding of the impact of the information society on the process of education and the man himself leads more and more researchers to the conclusion that definitive assessments of the impact were premature and wrong. The effects of human interaction with the computer virtual environment proved controversial. On one hand, the processes of becoming of information society open qualitatively new perspectives for the intensification and expansion of communication between subcultures, cultures, and within them, collaboration, implementation of the essential powers of man. “But at the same time it is created a threat of individual, group and mass consciousness being manipulated, transformation of social and psychological environment, information dependencies, forming one-dimensional man. Global communicative space expands “pseudocultural” field of communication, gives the ratio

between high and popular culture in favor of the latter". Increasingly, experts have to say about the origin of the crisis in morality, culture, mental health of society (Наумкина, 2009: 31).

So unconditional reflexionless informatization as a whole (which by the way is a catalyst for educational innovations) is criticized. However, on its own relentless focus on the involvement of all new innovations as a way to overcome the crisis in education remained generally accepted. And, "conscious of the profound contradictions and threats in the development of the information society, researchers have been actively searching for other dimensions of the new social order" (Цикин, 2012: 225). As a result of this search there appeared the conception of knowledge society. In scientific use the term "knowledge society", which specifies the type of economy where knowledge plays a crucial role and its production is converted into a source of development (Дракер, 2014), introduced back in 1996 P. Drucker. In contrast to the concept of "information society", which is defined with technology advances, the concept of "knowledge society" provides a wider social, psychological, ethical, axiological and other parameters (Наумкина, 2009: 33). Knowledge society theorists speak of not just information, but the information requested, the knowledge used not only as a fact, but in all its processuality; at the intersection of pedagogy and philosophy this logically evolved into the conception of preventive (in other words outrunning) education.

As noted by J. Naisbitt, we must learn to predict the future from the present. When we can do that, then you will know that the trend – it's not rock. We can learn from the future as well as once learned from the past (Нейсбит, 2003: 32). Education, adapted to the future, was called preventive by A.D. Ursul (Урсул, 2012). This idea was a logical extension of his philosophical conception of necessity to advance being by the consciousness while in global society transition to noosphere civilization.

Preventive education is seen as a new type of education that provides not correction of its individual aspects, not supplement of educational programs, but a radical change in all components of the current education, including its objectives, principles, scope, technologies, criteria for evaluating the quality and efficiency towards their compliance to capabilities of creative self-realization of schools and universities graduates in innovations, which provides social and cultural development, civic, cultural and professional and personal identity in a global world (Цикин, 2012: 227). Education should even go ahead of (prevent) other changes in society.

That standard of education is characterized by modern scholars as an education not just innovative, but also preventive. Preventive education – is innovative education, but with a number of specific characteristics, which we pointed out above. And having outlined the general theoretical framework it is now appropriate to consider exactly how its specifications in innovations in educational technologies, adapted to the real mass application, manifest themselves. Since we are confined

to an article dimension, let us do this on the example of testing, especially computer testing, which is actively implemented into the educational process nowadays globally.

Shape of control determines the content of training activities, and what is not controlled, becomes optional (Малинецкий, 2009). Let us explain this thesis in the context of computer testing. As we will show further testing is in principle not suitable for checking a range of knowledge and skills. For example, with testing it is not possible to test skills of laboratory work in physics and chemistry or ability to engage in dialogue and consistently defend one's point of view, which is vital for the humanities. Same with the skills to use reference books etc. Testing requires knowledge of a particular set of facts, but requires little or no analysis, ability to see interrelationships and understand the structure of the discipline being studied; can not identify the skills of reflection and explanation of one's knowledge.

"A separate problem is the presence in most disciplines of a set of different conceptions and interpretations, systems of terms and classifications, approximations and levels of description. To thus successfully cope with tasks that involve only the one correct answer, you should study the subject exactly in the paradigm used by the drafters of tasks". If you read the other tutorial, you find yourself necessarily in a loss. Thus, testing, in the words of G.G. Malinetskiy and A.V. Podlazov, "from an instrument of control ... in the sphere of education has become a factor that determines the content and forms of education" (Малинецкий, 2009). Other side effects of modern flurry of innovations one could explicate long. They are among other things medical contraindications (prolonged excessive electromagnetic radiation from the use of modern information, communication tools); lack of exercise; removal from direct communication; deeper immersion in a computer virtual world that is increasingly replacing surrounding reality for the inhabitants of developed countries.

Moreover, often there are lost the positive features of non-computerized training. For example, the common practice is to show the audience via a computerized projector ready charts and tables in static, while the "teacher with a piece of chalk" proposed schemes and tables in dynamics, gradually adding piece by piece and accompanying the process with explanations. However, this example of a drawback of computerization can be corrected. But let us take another example – generally encouraged presentations include basic definitions etc. on a big screen. In this way the speaker learns to rely less on memory in presenting the material. This process can be regarded as an integral drawback of presentations – earlier speakers relied on memory more thus they had to keep in heads more knowledge.

So, going back to what was said earlier, the information society as a uniting form, in which there should be incorporated by the way appropriate pedagogical innovations too, failed. And that should have imposed its imprint on the evaluation of pedagogical innovations elaborated in correlation with it. The paradox is that the

knowledge society is proclaimed, but the set of innovations inherently characteristic of information society, is not limited in teaching practice. Moreover, it is growing, changing only the name. It seems that continual involvement of innovations in education turns to an intrinsic value, which prevents from more or less objective evaluation of the new, prevents from critical comparison with the best examples of the past. What about the proclaimed ideals of the knowledge society... The overuse of innovations in the educational sphere leads to an acute problem – the problem of the balance of tradition and innovation, past and future in education; “...in the area of social reality there is a following tendency: innovation rather than tradition becomes the form-creating basis. It is formed ... temporal asymmetry ... where future becomes deprived ... from the past” (Бріжара, 2012: 176).

Thus, the role of contemporary flurry of innovations is controversial, their impact is far from optimum. Therefore it is necessary to involve fundamental changes in the sphere of educational innovations. Innovation processes in education should be investigated in the interrelation with broad social context. One must consider the consistency of the education system with a set of vital public needs; public opinion in relation to each of its structural elements; promote not just the development (change in general) as such, but the progressive development of society on the basis of past achievements as the fundamental purpose of education. Therefore, implementation of innovations should provide long preparatory phase, which would include modeling, comprehensive expert evaluation, completion, comparison with recent educational achievements (Цикин, 2014: 210). Do not be afraid to reject a particular innovative educational technology, even at the stage of completion. If there is a negative impact of innovation in a particular aspect of a person, it is necessary to remember, paraphrasing I. Kant’s words, that innovations are not the goal – they are only a means. The goal of any change is not an innovation in itself, but the benefit of man.

Innovation processes initiated on the basis of the above provisions should be implemented in all educational institutions. Updated types of educational institutions, new management systems, technologies, tools and techniques of teaching are manifestations of the grand potential of the innovation process. Their appropriate implementation, application facilitates positive change. However, the practical implementation of innovations can have side effects. A wide range of innovative education problems shows that the international community needs a consistent and long-term educational policy based on an understanding of the goals of innovative education and real opportunities for their implementation. For the most complete understanding of innovative education in conditions of the changing values and attempts to introduce new approaches and technologies within education it is required a general philosophical analysis of the theoretical assumptions of development of innovative education (Петров, 2011). Philosophy contributes to the analysis of innovative education process as the integrity that covers all the diversity of manifes-

tations of education, all types and levels of its particular stage of development in the educational and wider social and cultural space in conditions of technointellectual society.

Based on the mentioned above we can formulate the following summarizing basic principles of further right-minded pedagogical innovations generation. Firstly, the expediency. Innovation has to solve a particular problem. Secondly, spiritual, political, societal, physiological and physical safety. Thirdly, – the need for which follows directly from the second principle – interdisciplinary expertise. There should be involved not only the teachers, but also psychologists, doctors, philosophers, futurists, sociologists and other experts. Fourthly, the duration of the preparatory phase should be as long as possible, as the negative side effects may be delayed. As the result of use of these principles we will get the real knowledge society (not information society) innovations.

Colossal education system, the principle «nonstop education throughout the whole life», the principles (formulated by the author) of limiting the generation of innovations illustrate the fact that Man (not only a separate person, but also Man as human communities, Mankind, planetary society as a whole) can and must directly manifest the inherent freedom of will concerning the correction of innovations implementation constructive and destructive consequences correlation, in particular pedagogic technologies in the basis of usage of which lie technointelligence means. Awareness of innovation-related problems, the harmonic input of the mentioned above observations into the general philosophical and theoretical paradigm of innovative preventive education, the introduction of the principles of right-minded generation of pedagogical innovations should serve as successive phases of the process.

REFERENCES

- Алексеева, И.; Аршинов, В.; Чеклецов, В. (2013). „Технолюди“ против „постлюдей“: НБИКС-революция и будущее человека“. *Вопросы философии*, 3: 12 – 21.
- Башарина, А. (2009). „Социальные инновации в образовании: сущность и классификация“. *Известия Самарского научного центра Российской академии наук. Т. II. Педагогика и психология. Филология и искусствоведение*, 4: 1101 – 1107.
- Бріжата, І.; Цікін, В. (2012). *Філософія освіти – стратегія прориву в майбутнє*. Суми: Сум ДПУ ім. А. С. Макаренка.
- Демкин, В. (2007). „Инновационные технологии в образовании“. *Исследовательский университет*, 2: 22 – 29.
- Дракер, П. (2014). „От капитализма к обществу знания“. *UCOZ*, Режим доступа: <http://ifuture.narod.ru/001/drucker001.htm>.
- Карпенко, О.; Бершадская, М.; Вознесенская, Ю. (2008). „Показатели

- уровня образования населения в странах мира: анализ данных международной статистики“. *Социология образования*, 6: 4 – 20.
- Леонтьева, О. (2006). „Инновации как новая философия высшего образования“. *Фундаментальные исследования*, 7: 83 – 84.
- Майер, Г.; Демкин, В.; Руденко, В.; Жамнов, В. (2009). „Корпоративные информационно-телекоммуникационные системы в образовании“. *Информатизация образования и науки*, 4: 102 – 110.
- Малинецкий, Г.; Подлазов, А. (2009). „Некоторые системные дефекты ЕГЭ“. *Институт прикладной математики им. М. В. Келдыша РАН, Нанотехнологическое общество России*, Режим доступа: <http://www.ntsrf.info/nanoworld/e-learning/actual/index.php?ID=1293>.
- Наумкина, Е. (2009). „От информационного общества к обществу знаний: образовательный аспект“. *Філософські науки*, 1: 30 – 37.
- Нейсбит, Дж. (2003). *Мегатренды*. Москва: АСТ: Ермак.
- Петров, В. (2011). *Сущность и тенденции развития инновационного образования: социально-философский анализ*. Новосибирск: дис. канд. филос. наук.
- Урсул, А.; Урсул, Т. (2012). „Эволюционные парадигмы и модели образования XXI века“. *NOTABENE: Педагогика и просвещение*, 1: Режим доступа: http://e-notabene.ru/pp/article_59.html.
- Фомичева, И. (2004). *Философия образования: некоторые подходы к проблеме*. Новосибирск: СО РАН.
- Цикин, В.; Наумкина, Е. (2009). *Философия образования: постнеклассический подход*. Сумы: Сум ГПУ им. А. С. Макаренка.
- Цикин, В.; Карпенко, В. (2014). „Философская интерпретация сущности инновационного образования“. *Инновации в науке*, 1: 207 – 218.
- Цикин, В. (2012). *Философский дискурс феномена конвергенции супертехнологий в обществе риска*. Сумы: МакДен.

REFERENCES

- Alekseeva, I.; Arshinov, V.; Chekletsov, V. (2013). “Tehnolyudi” protiv “postlyudey”: NBIKS-revolutsia i budushtee cheloveka. *Vopros filosofii*, 3: 12 - 21.
- Basharina, A. (2009). “Sotsialnye innovatsii v obrazovanii: sushtnosty i klassifikatsiya”. *Izvestia Samarskogo nauchnogo tsentra Rossiyskoy akademii nauk*. T. 11. *Pedagogika i psihologia. Filologia i iskusstvovedenie*, 4: 1101 - 1107.
- Brzhata, I.; Tsikn, V. (2012). *Filosofiya osviti - strategiya prorivu v maybutni*. Sumi: Sum DPU im. A. S. Makarenka.
- Demkin, V. (2007). „Innovatsionne tehnologii v obrazovanii“. *Issledovatelyskiy universitet*, 2: 22 - 29.
- Draker, P. (2014). „Ot kapitalizma k obshtestvu znaniya“. *UCOZ*, *Rezhim dostupa*: <http://ifuture.narod.ru/001/drucker001.htm>.

Karpenko, O. ; Bershadskaya, M.; Voznesenskaya, YU. (2008). „Pokazateli urovnya obrazovania naselenia v stranah mira: analiz dannykh mezhdunarodnoy statistiki“. *Sotsiologia obrazovania*, 6: 4 - 20.

Leontyeva, O. (2006). „Innovatsii kak novaya filosofia vysshego obrazovaniya“. *Fundamentalnye issledovaniya*, 7: 83 - 84.

Mayer, G.; Demkin, V.; Rudenko, V.; Zhamnov, V. (2009). „Korporativne informatsionno-telekommunikatsionne sistemi v obrazovanii“. *Informatizatsia obrazovania i nauki*, 4: 102 - 110.

Malinetskiy, G.; Podlazov, A. (2009). „Nekotorye sistemnye defekty EG“. Institut prikladnoy matematiki im. M. V. Keldysha RAN, Nanotekhnologicheskoe obshtestvo Rossii, Rezhim dostupa: <http://www.nts.info/nanoworld/e-learning/actual/index.php?ID=1293>.

Naumkina, E. (2009). „Ot informatsionnogo obshtestva k obshtstvu znaniy: obrazovatelyny aspekt“ *Filosofsyki nauki*, 1: 30 - 37.

Neysbit, Dzh. (2003). *Megatrend*. Moskva: AST: Ermak.

Petrov, V. (2011). *Sushtnosty i tendentsii razvitiya innovatsionnogo obrazovania: sotsialno-filosofskiy analiz*. Novosibirsk: dis. kand. filos. nauk.

Ursul, A.; Ursul, T. (2012). „Evolyutsionne paradigm i modeli obrazovania XXI veka“. *NOTABENE: Pedagogika i prosveshtenie*, 1: Rezhim dostupa: http://e-notabene.ru/pp/article_59.html.

Fomicheva, I. (2004). *Filosofia obrazovania: nekotorie podhod k probleme*. Novosibirsk: SO RAN.

Tsikin, V.; Naumkina, E. (2009). *Filosofia obrazovania: postneklassicheskiy podhod*. Sum: Sum GPU im. A. S. Makarenka.

Tsikin, V.; Karpenko, V. (2014). „Filosofskaya interpretatsia sushtnosti innovatsionnogo obrazovaniya“. *Innovatsii v nauke*, 1: 207 - 218.

Tsikin, V. (2012). *Filosofskiy diskurs fenomena konvergentsii supertekhnologiy v obshtstve riska*. Sum: MakDen.

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