

EDUCATION AND SCIENCE OPENNESS TO CHANGE AS A BASIS FOR ITS DEVELOPMENT

Nataliia TEREENTIEVA, Doctor of Pedagogic Science, Professor

<https://orcid.org/0000-0002-3238-1608>

Pedagogics, Psychology and Methodic of Physical Education Department

T. H. Shevchenko National University “Chernihiv Colehium” (Chernihiv, Ukraine)

Abstract. The article deals with the issues of flexibility and constant modernization changes in the educational sphere as a response of the education system to the challenges of society. Emphasis is placed on expanding the list of socio-economic professions governing the relationship “individual – social institution”. The requirement for modern specialists to apply non-standard solutions and the ability to act flexibly in the dynamic conditions of society is regulated by the multi-purpose and multi-component result of education. It is stated that even in the conditions of virtualization of education, universities should remain intellectual centers, which ensure the availability of higher education, fairness in learning and knowledge acquisition, contribute to the historical development of humanity. Accordingly, the mission of universities should also include the formation of a new type of person who possesses a complex of innovative thinking.

Keywords: higher education, university, academic entrepreneurship, new (noospheric) thinking, socio-economic professions.

DESCHIDEREA EDUCAȚIEI ȘI ȘTIINȚEI SPRE SCHIMBARE CA BAZĂ PENTRU DEZVOLTAREA ACESTORA

Rezumat. Articolul tratează problemele de flexibilitate și schimbări de modernizare constantă în sfera educației, ca răspuns al sistemului de învățământ la provocările societății. Se pune accent pe extinderea listei profesiilor socio-economice care guvernează relația „individ - instituție socială”. Cerința pentru specialiștii moderni ce aplică soluții non-standard și dețin capacitatea de a acționa flexibil în condițiile dinamice ale societății este reglementată de rezultatul polivalent și multi-component al educației. Se afirmă că, chiar și în condițiile de virtualizare a educației, universitățile ar trebui să rămână centre intelectuale, care să asigure disponibilitatea învățământului superior, corectitudinea învățării și însușirii de cunoștințe, să contribuie la dezvoltarea istorică a umanității. În consecință, misiunea universităților ar trebui să includă și formarea unui nou tip de persoană care posedă un complex de gândire inovatoare.

Cuvinte cheie: învățământ superior, universitate, antreprenariat academic, gândire nouă (noosferică), profesii socio-economice.

Educational installations as open systems constituting the part of external environment and, thus, having been influenced by its factors acquire new quality characteristics and increase their own potential for development. The numerous researches point out at the existence of a complex and nonlinear interdependency between education quality and economic growth of a state. A state education system development process is influenced by the combination of different environmental factors of legal, political, socio-demographic, economic, scientific, innovatory, historical and cultural spheres. Universities play the leading role in adoption of innovation learning, educational technologies, creative components, new ways of thinking etc. In particular, it manifests itself in deepened cooperation between universities at national and international levels on the matter of

training professionals for the purpose of creation and rational use of information technologies in all spheres of human activities. Having been adopted in universities such principles of advanced education as fundamentality and integrity of informational knowledge rendering, education individualization, practical orientation of knowledge, application of modern educational technologies are likely to further migration (mobility) of highly-qualified professionals [6, p. 145-146].

Globalization had entailed reappraisal of traditional values and resulted in shaping the new relationship model which denotes a person's self-value cognizance as an equipollent subject of external environment and civilizational relations. Socio-economical and technological transformations along with quick accumulation of knowledge and innovations invoke restructuring in industry, economy and administration impelling education system despite its steadiness and adherence to traditional values to be reoriented towards the social challenges.

The growth of the standardized world-wide cultural services and goods market has evinced persistent globalization processes at culture level. Talking about the education we also talk about educational services and productive force. The social measurement of higher education has been gradually increasing since the mission of higher education installations includes such a constituent as labour market that, in its turn, enables interaction between employers and higher education installations as well as expands the list of socioeconomic professions while regulating relationships between an individual and a social institution. These professions presuppose postgraduates to have acquired:

- juridical, sociological, and psychological competences in general;
- conflictological and managerial competences at high level of practical implementation;
- and developed research thinking.

The enumerated above asserts the subsistence of cooperation within the frameworks "social institution – social institution", "social institution – personality", and "personality – personality" in global dimension.

The ongoing processes in socium require nowadays professionals to make non-standard decisions and act flexibly in changeable social environment promoting the appearance of effective methods and approaches as well as innovative technologies in education. Innovative pedagoguism is a telic educational work which is based on the comprehension of practical educational experience and directed towards education process development with the view of achievement higher results, acquirement of new knowledge, and formation of qualitatively new educational practice.

The result of education is multi-purpose and multi-component. In particular, it includes skilfulness, scholarship, competence, and mentality. Even though these components are not principally new, their content, comprehension and explication change over the epochs, social challenges, and labour market's requirements. Not only the renewal

of educational paradigm (transition from processive to resultant) but also the renewal of managerial paradigm is in progress. The latter is not so much called for the education quality assurance process as the result of education which, in particular, has to satisfy the employers' demands. Dual education system, resultant paradigm, flexibility and variability of education process, creating of complexes the same as entrepreneurial universities combining integrated scientific researches and entrepreneurial innovations (science + education + innovations + industry + government) in consideration of global and regional education development trends appear to be wholesome to the point. The priority of mentality and new global (noospheric) thinking is also worth of being remarked [5, p. 29].

The searches of anthropogenic world outlook errors have contributed to the development of principal ideas of new civilizational paradigm. According to the paradigm the nature and the society must evolve in integrity with each other but not as competing values. Integrity stipulates for interconnection and interdependence of a system's constituents. Thus, the interpenetration of biosphere and society as well as their coevolution determine the future of human civilization.

The vital issue for Ukraine is the necessity to form new standards of living and create the behavioural model which would enable the use of all the creature comforts while using natural resources sparingly and fostering a physically healthy, well-educated, and spiritually enriched personality. Formation of wholesome human demands and interests relies on defining a person's creative abilities and all-round ways of their implementation and is based on extension of standards of healthy life-style, rational economical behaviour, and material welfare. Creation of material and institutional conditions for unconstrained development of a personality along with freedom of entrepreneurship and private life which, in its turn, should be interconnected with upbringing the social responsibility for own future, activity and its results is considered an aspect of the social development transformation ideology. Personal decency, professionalism, high cultural standards and responsibility must be cultivated by a society and get implanted in the mass consciousness and behaviour [1, p. 9-10].

Reformation of educational sphere in order to make national education system comply with nowadays requirements remains a priority task. Formation of an individual with creative innovative thinking capable of self-realization and self-perfection, able to generate constructive proposals and put them into professional and social activities would essentially contribute to education improvement process.

Reformation of higher education system within the framework of integration with European higher education area (EHEA) and appearance of new generations (so-called indigo children/generation X) necessitate rethinking and renewal of pedagogic science and future pedagogues training system. The great number of innovations in pedagogy are connected with the general social processes, global issues, integration of knowledge and social being forms and oriented towards the formation of personal readiness to experience

dynamical changes in socium on account of creative abilities development, willingness to cooperate, and forming different thinking patterns including innovative thinking which is to be formed on a master's level of higher education [4, p. 107].

Science and education work for the future while ensuring fundamental, cultural, and practical training of professionals in all fields of economy, culture, and social life. A fortiori, by producing up-to-date technologies they actively take part in scientific, technological, economical, and social problem solving since adoption of new technologies and availability of highly-qualified professionals call forth a state's economic advancement. Thus, a higher school must experience permanent problem solution on the matters as follows:

- improving the quality of teaching
- underpinning the education process by scientific basis
- updating the content of higher education
- adopting efficient technologies
- organizing the education process as a continuous science and production activity
- setting up training and industrial facilities
- and enabling accession to the transcontinental computing information system [3, p. 500].

Universities while moving towards integration into European and global community ought to adapt their educational services for not only national but also international labor market. The following aspects appear reasonable to be framed in the educational system transformation concept:

- strong compliance with the notion that education is the base of a state's economical development
- substantiation and introduction of new prestigious competitive specialties which are able of forming the new generation of highly qualified professionals
- education adaptation to market-oriented economy conditions with a glance at ongoing integration processes
- understanding the necessity of changes in education content along with sequential adoption of pedagogical innovations and up-to-date informational technologies
- and extension of business connections with employers and continual correction of a professional's model at all stages of his training.

Scientific technological products, integrated products on the base of sci-tech productions and educational services, as well as educational and methodological products are proposed at education market. Distinctive characteristics of educational services are imperceptibility, intangibility, quality inconstancy, inability of detachment from a provider. In addition, educational services are not preservable i.e. superposed in space and time of their production and usage. Educational services acquire new specific characteristics at the expense of growing internationalization, education globalization, and

development of distance forms. Extension of innovation processes and internationalization of economical life have modified the postulate of material education services. Since an electronic data carrier had become a knowledge transmission element educational services took the shape of material dimension. Emergence of virtual universities leads to diminishing of direct contacts between traditional pedagogues and learners that makes provision for defining an educational service as a scope of scientific and research information which experiences transformations into a quality product in education process in order to satisfy a person's or an institution's requirements for general (academic) education, professional (vocational) training, and life-long formal education [3, p. 502-503].

Nowadays we witness a little understanding of the necessity to change and form new thinking. Under such circumstances, the drastic descent of scientists' qualifications and unavailability of highly-qualified professionals resulting in professional and educational degradation of political, industrial, business and military elites are likely to become apparent.

The following educational services quality criteria appear to be distinguishable:

- availability of educational services which deems to be heavily dependent on the educational installation's location in the vicinity of the customers
- reputation of the educational installation
- scholarship and experience level of the teaching staff, its knowledge and understanding of the customers' demands
- reliability of educational services
- safety of education
- competence in the sphere of educational services
- cultural level of the teaching staff
- response of the teaching staff to additional customers' requirements
- level of communication etc.

Universities act as intellectual centres and international organizations ensuring the availability and equality of higher education. They also function as cultural and spiritual centers making provisions for social and humanitarian events, thus, encouraging historical evolution of mankind. Nevertheless, inadequate financing of education makes universities carry out economic activity to find own financial assets.

"University (academic) entrepreneurship" is considered to be an independent intellectual kind of entrepreneurial activities in new economical-social environment ("academic capitalism") since the generalized economics operates with such notions as capitalization of knowledge (accumulation of non-material assets and intellectual capital and their further transformation into categories of capital and competitive advantages), commercialization of intellectual area (transformation of knowledge as a category of

intellectual product into an economic category of merchandize), intellectual property, new missions of an educational installation, new missions of a scientist etc.

Training of teaching staff for the New Ukrainian School is considered to be a direction of forming a new thinker. It tends to be perceived as a specific challenge for pedagogically-oriented higher education installations and, thus, raises the question of radical reconstructions in the national training system.

A university is the key element of “university education – government – industry” triad which has formed its own innovative educational environment for the purpose of creating the future human talented of innovative thinking. The concept legitimizes the existence of “higher education – researches – innovations” triad and proves innovations to be considered the ground for “new future”.

If considering a university’s functioning in the capacity of a training centre for a new-generation individual (an acme-personality) a university seems capable of exercising acme-functions provided its areas of activities, connoted by a centre of civilian and scientific life, a producer of business ideas, and a centre of teaching, are clearly shaped and well developed.

It appears impossible to develop these areas as long as teaching staff offers resistance to innovations, including creation of electronic educational resources designed to apply distance learning and enable learners to rely upon scientific studies of leading scientists of the university, region, country, and world, but not to copy and disseminate antiscientific materials whose content is not understood.

Training of new-generation individuals in universities might be optimized by implementation of measures as follows:

- combining enhanced courses on fundamental disciplines with specific courses pertaining to innovative thinking formation which is characteristic of elite education
- maintaining close ties among academic scientific institutions in order to adopt modern educational technologies and specialized syllabi (courses)
- supporting world level scientific schools in order to stabilize informational and material supply of science
- encouraging talented young people, gifted students, and promising aspirants and doctoral candidates, thus, creating conditions for realization of human intellectual potential and supplying innovation pool to carry out research
- and efficient exercising social functions of science that form spiritual and intellectual (educational, cultural etc) as well economical and designing potentials of human society [2, p. 335].

Formation of the planetary consciousness and noospheric thinking is a sign of noospherization tendency in university education. The tendency is eligible for consideration in the context of strategic planning on sustainable development of society as well human evolution which, in its turn, promotes university critical innovation potential

built-up and new human thinking within the framework of university education. The latter implies the availability of the functions as set forth below: – reacting to social, economic, scientific, and cultural aspects; – formation of global knowledge enabling global problem solution; – development of critical thinking; – adherence to active civic stand; – information awareness; – openness and clarity of an educational installation functioning within its autonomy [6, p. 146]. In addition, universities as new noospheric thinking and consciousness formation centres act as training centres which prepare professionals on ensuring sustainable development of society.

Bibliographical references

1. Новий курс: Реформи в Україні 2010–2015. Національна доповідь [заг. ред. В. М. Гейця та ін.]. Київ, 2010. 232 с. 13, с. 9-10.
2. Терентьева Н.О. Мотивація професорсько-викладацького складу університетів до створення нових електронних ресурсів. Інформаційно-комунікаційні технології в сучасній освіті: досвід, проблеми, перспективи. Збірник наукових праць. Випуск 5. 2017. с. 333-335.
3. Терентьева Н. О. Розвиток університетської освіти України періоду незалежності: інтеграційний та акмеологічний напрями. Сучасні акмеологічні дослідження: теоретико-методологічні та прикладні аспекти: моногр. 2016. с. 497-520.
4. Терентьева Н.О. Формування нового мислення – запорука успішної діяльності університету. Pedagogical education in modern university – project-based approach to the work organization according to the guidelines of the European Qualifications Framework (experience of the Pen European University): the abstracts of scientifically-methodological works by the results of international scientific and pedagogical internship, which was organized by Danubius University for scientists of Ukrainian universities on March 22-24, 2017 in Sladkovicovo, Slovak Republic. p. 107-110. (in Ukr.)
5. Терентьева Н. Формування нового мислення як визначальний фактор професійної підготовки сучасних фахівців з вищою освітою. Професійний успіх у контексті стратегії сталого розвитку: освіта, економіка, екологія. Черкаси, 2018. с. 23-44.
6. Terentieva N., Yashnik S. Formation of Planetary consciousness and the Noosphere mentality of the universities' students as a condition for sustainable development. Edukacja – Technika – Informatyka (Education – Technology – Computer Science). Kwartalnik Naukowy (Quarterly Journal) 1/19/2017. Rzeszów: Wydawnictwo Uniwersytetu Rzeszowskiego, 2017. p. 145–151.