

PEDAGOGY

Harmonization of Bachelors-Environmentalists Educational Training on the Example in Ukraine and Poland

O. P. Mityasova*

Ecology and Environmental Management Department, Petro Mohyla Black Sea State University, Mykolayiv, Ukraine

*Corresponding author. E-mail: eco-terra@ukr.net

Paper received 15.09.15; Accepted for publication 30.09.15.

Abstract. The specifics of development of national higher education under the conditions of European integration are given; comparative characteristics of curricula for bachelor-environmentalists are carried out; the specifics of national system of training environmentalists are determined; the specifics of environmentalists in polish academy are outlined. The possible aspects of implementing the joint environmental training are determined to ensure the quality of training students, their mobility and the competitiveness on the labor market.

Keywords: *integration; the content of education; the Bologna process; preparation of bachelor-environmentalists*

Introduction. More than 10 years have passed since Ukraine has launched the reform of higher education, taking the direction to European integration. The specifics of recent years is the purposeful compatible activities participating in the Bologna process (now already 47) with the formation of the European unified educational space. One of the most important modern features of the development of higher education is the integration of national systems of preparation of specialists of different directions that happens by addressing common challenges, the implementation of agreed educational policy at the regional and international levels. Integration processes in the respective directions are introducing European norms and standards of education, promoting mutual scientific and cultural achievements. In general this kind of steps must lead to increase in Ukraine of European identity.

Analysis of integration trends in higher education in Ukraine in recent years filed in numerous writings of scientists: Dobko T. and etc. [4], Golovchuk A. and etc. [11], Lugovoy V. [7], Rashkevych U. [8], Bulgakova N., Rahmanov V. [2] and etc. To comparative analysis of training future the environmentalists in universities of Europe is dedicated to the publication of Bogolyubov M. [1], Kofanova O. [5], Rìdej N. [9], Rudishin S. [10] and others.

The **aim** of the research is to clarify the priority ways of integrating domestic experience bachelors-environmentalists to European higher education on the example of Ukrainian and Polish high schools.

For the realization of the aim appeared the need to solve the following tasks:

- outlining the specifics of development of national higher education under the conditions of European integration;
- comparative analysis of curricula for Bachelors-environmentalists;
- defining features of the national system of training environmentalists;
- identification of the specific preparation of environmentalists in Polish high school;
- to provide high-quality training of students, their mobility and the competitiveness on the labour market to determine possible aspects of implementing the generalized environmental training.

Materials and methods are analysis of the development of the higher education trends, comparison of the bachelors' ecologists' professional training and synthesis of the results of research into vertical (historical) and horizontal (functional) scopes.

Results and discussion. Domestic higher education has a profound positive tradition, and remains a powerful factor in the development of culture in society, the formation of productive forces of the country. Having the unique function to all aspects of culture in society, higher education should be supplemented by innovative European experience based on a combination of the best national traditions and European trends concerning the training of student's.

We delineate the modern conditions of development of the national higher education that are specific and affect the quality of the preparation of graduates.

Over the past decade higher education has become the nature of mass, has ceased to be an elite. A number of universities and students in Ukraine in recent years has increased several times (fig. 1, 2). In Poland today there are more than 450 institutions that provide higher education where students over 2 million students.

Mass of higher education has led to the fact that the universities began to "fight" for the applicant, and, in this way, faced with the situation worsening as the knowledge of the students. The situation of mass higher education has led to a decrease of requirements for the training of students. The training of specialist is a multi-faceted creative process, which requires depth, foundation, completeness of acquired knowledge and the formation of a complex of competences, which are now taken into account while creating a regulatory framework of training bachelors and masters.

The rhythm of the present time is in need of constant change of job searches outside his own specialty, and this requires graduates of such skills as mobility, i.e. the ability to continuously learn, ability to quickly switch to work in other areas of knowledge. Thus, acquires the relevance of education for all life and one of the main tasks of higher education displaces the emphasis on assimilation and formation of ready knowledge and training the student to study.

We describe some of our view, advantages and disadvantages of national education for a comparison of the educational process for bachelors-environmentalists and implementation process of the harmonization of educational programs.

Thus, the competitive advantages of national system of training specialists are: the best humanitarian training of students; until recently, the presence of common to all State standards of training, which provides a consistent curriculum, and universities have eligible for selective part which takes universities the regional aspect of the education's

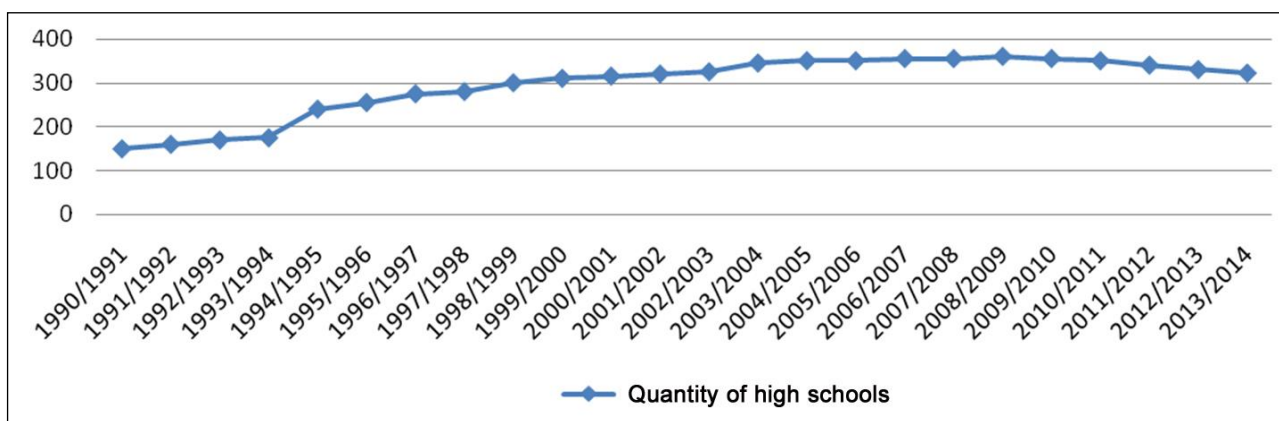


Fig. 1. The dynamics of the number of universities for the period 1990–2014 in Ukraine. (Zharska I., Netkova V. [3])

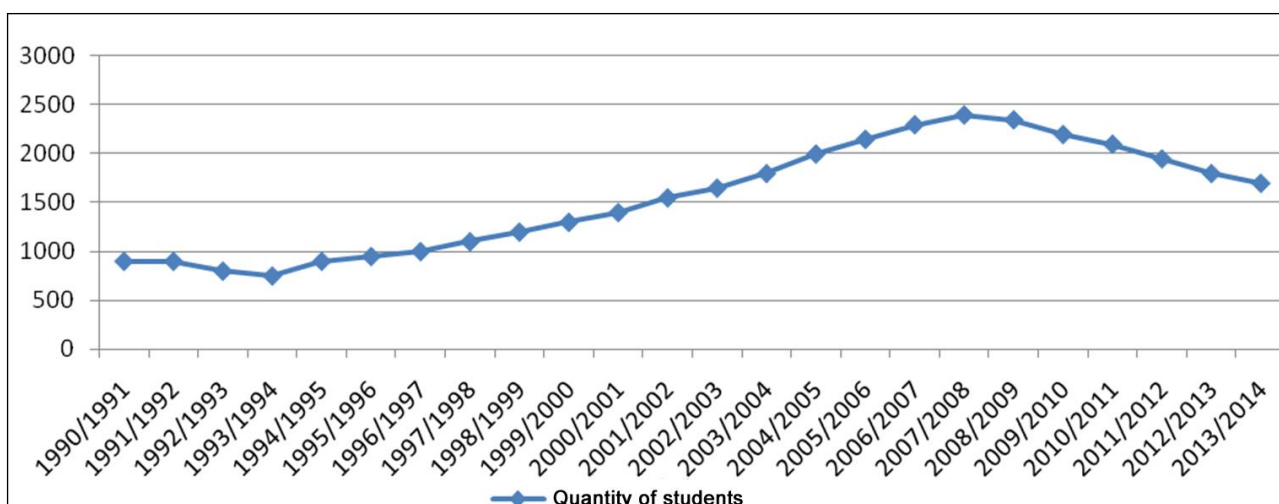


Fig. 2. The dynamics of the number of students for the period 1990–2014 in Ukraine. (Zharska I., Netkova V. [3])

content of professionals and provides universities with a specific academic autonomy; a certain conservatism of the contents of fundamental training and the use of traditional forms, methods of teaching and presentation of educational material, which, in this way, laying the basis for further professional mobility, creates conditions for sufficiently high competitiveness. However, there are national higher education drawbacks that hamper the competitiveness of university graduates in the labour market, namely: on a background of chronic underfunding the inhibition of the scientific-research of universities, the lack of a single effective State policy in the field of science and transposition "on the shoulders" of the universities funding research; insufficiently effective using of modern information tech

nologies in educational process.

However according to modern economic and political conditions the higher education national system is taking a course on the harmonization of the educational training specialists programs. Consider this particular question for specialty "Ecology, Environmental Protection and Balanced Nature Use". In the polish academy the similar direction has a name "Protection of the Environment" ("Ochrona srodowiska"). Comparison of curricula' elements for bachelors in Petro Mohyla Black Sea State University (Ukraine) for direction "Ecology, Environmental Protection and Balanced Nature Use" and Pomeranian Academy (PA) in Slupsk (Poland) for direction "Protection of the Environment" are given in the table.

Table 1. Comparison of the curricula for bachelors-environmentalists in Petro Mohyla Black Sea State University (Ukraine) and Pomeranian Academy in Slupsk (Poland)

University	Petro Mohyla Black Sea State University	Pomeranian Academy
Training period	3 years 10 months	3 years
The total number of disciplines	55	55
The number of disciplines humanitarian training	6–10	–
The number of disciplines (hours) of mathematics and science training	15 (2376 hours)	28 (2670 hours)
The ratio of disciplines of mathematics and science and professional and practical training (%)	31/69	49/51
The number of disciplines in a semester	6–10	8–12

Comparative analysis of the curricula shows that the number of disciplines that are studied by students of the two universities at different training time is the same. However there is no denying the fact that the number of disciplines

of mathematics and science training in Ukrainian university compared with PA are considerably less. In the Polish University the courses of the humanitarian and socio-economic training are full absence. There is the trend of uniform ratio

of fundamental disciplines with professionally designed courses. We have a conclude about the purely aimed at professional and practical training of students in Poland.

Features of bachelors' preparation in the polish university is the lack of humanitarian and socio-economic education; learning content is characterized by profound fundamental science research component with significant biological courses in particular. The fundamental natural science component covers such substantive modules: Mathematics and Physics (9 credits/270 hours); Chemistry and Biochemistry (16 credits/480 hours); Biology and Microbiology (23 credits/690 hours); Ecology and Nature Conservation (15 credits/420 hours); Earth Science (15 credits/450 hours).

The fundamental natural-scientific part of the training the students-environmentalists in Petro Mohyla Black Sea State University consists of the following substantive modules: Mathematics and Physics (10.5 credits/378 hours); Chemistry with the basics of Biogeochemistry (9 credits/324 hours); biological disciplines (22 credits/792 hours); General Ecology (6 credits/216 hours); Earth Science (20 credits/720 hours).

Analyzing the content of fundamental training in the two universities can be choosing its shared characteristics, namely: a significant emphasis on the study of biological module (in terms of educational and variety of courses), almost the same amount of mathematics and physics training time. So, quite a powerful biological fundamental preparation of environmentalists in PA covers the following disciplines: Botany (6 credits); Zoology (6.5 credits); Biodiversity (3 credits); Environmental Microbiology (5 credits); Genetics (1 credit); Biogeography (1 credit). The biological component of the curriculum training ecologists in Petro Mohyla Black Sea State University is presented in the following courses: Biology (6 credits); basics of General Microbiology (4 credits); Basics of Hydrobiology (4 credits); Biometrics (8 credits).

Chemical component of the environmentalists' training has significant differences. So, for the students of PA it is different of fundamental, breadth, variety and is consistent in logical study of a number of courses. In Pomeranian Academy among the chemical disciplines courses are represented: General and analytical chemistry (5 credits); Organic Chemistry (5 credits); Environmental Chemistry (3 credits); Biochemistry (3 credits). Then as a chemical fundamental component in Petro Mohyla Black Sea State University is represented just one discipline "Chemistry of the basics Biogeochemistry", the study of which is devoted to 9 credits.

Chemical training in PA is provided to formation competencies which we can combine the following descriptors: theoretical knowledge of basic sections of chemistry (inorganic, analytical, organic, biological); basic knowledge of the specialized sections of chemistry, particularly environmental chemistry; practical skills and skills in carrying out laboratory experiment, working with reagents, instruments of physical-chemical methods of analysis. Therefore, the chemical preparation of bachelors on ecology in the Polish university is thorough, diverse and correspond the basic requirements which are proposed to formation of professional and practical competency training of future specialists in the field of environmental protection.

Discussing the results of students' training through the formation of certain competencies it is necessary to note the overall integrated nature of the "competence" notion

regarding the definitions of "knowledge", "ability", "skills". Generally defined that the result of the learning is the formation of certain types of competences which by the European TUNING project [12] definition covering the knowledge and understanding of, the knowledge of how to operate, the knowledge of how to be.

The "competence" notion covers not only cognitive and operation technological components but also motivational, ethical, social and behavioral side (results of education is a system of knowledge, skills and value orientations). In the formation of competences lead role plays not only the content of the training courses, but also an educational environment of universities, the organization of the educational process, educational technology, including the independent work of students etc.

Professional and practical competences of students-environmentalists are resistant fundamental knowledge of laws, principles, structural and functional organization of ecosystems of different levels; skills to analyze, classify, systematize, to determine the function of the environment objects' existence from position of balanced rational nature management; the ability and skills to monitor the individual components of the ecosystem and its components using a variety of methods; the ability to make decisions and organize management in the field of environmental activities [6].

Studying the organization of the educational process it may be noted that the preparation of the environmentalists in the two universities is different conceptually. So, in the Ukrainian university it has a purely general ecological direction whereas in Poland – practical conservation.

The first direction carries accents to study issues such as organization of ecosystems, dynamic equilibrium in the biosphere, the environmental problem. It is characterized by versatility; multidimensionality compiled the study of general and global ecology fundamental problems, ecological safety, control and management of the environment quality, the use of population and ecosystem approaches in ecology, natural, regulatory, legal and economic bases of consideration and solving environmental problems.

The second direction is directed to the question of the environment, analysis of anthropogenic effects, techniques and tools of rational nature management. This direction is more practical orientation training; the content of the training courses is aimed on the study of methods, techniques, instruments measuring the composition and properties of the various components of the environment, quality standards for the components of the environment, technology and engineering in the field of nature conservation.

Conclusions. Therefore, comparing the curricula and also learning content for students-environmentalists in the universities, it can be noted that there are common characteristics and differences in the training of future specialists on the environment protection. Coordinated system of education in PA is in constant dynamic, however, the system of education in Ukrainian university is at the stage of transition to European standards, harmonization of educational programs, while maintaining the humanitarian, socio-economic and fundamental-nature components of the training. We note the fact that a number of projects within the framework of the European Union allow the student to learn a part of training in European countries, which encourages the growth of knowledge and skills, improving the mobility of graduate.

REFERENCES

- [1] Bogolyubov, V.M. Theoretical and methodological bases of formation of professional competence of environmentalists in the transition to sustainable development: avtoref. dis. dr. ped. sc.: spec. 13.00.02 – theory and methodology (agricultural disciplines) / V.M. Bogolyubov. – K., 2014. – 42 p.
- [2] Bulgakova, N.B. Methods of teaching in higher education: teach. guidances. / N.B. Bulgakova, V.O. Rahmanov – K. : Publisher of the National Aviation University "NAU-printing", 2011. – 220 p. ISBN 978-966-598-759-8
- [3] Zharska, I.O. The current state and trends of the educational market in Ukraine: statistical evaluation / I.O. Zharska, V.M. Netkova [Tekst] / Statistics of Ukraine. – №2(65). – Kyiv, 2014. – P. 45–51.
- [4] The imperative of quality: learning to appreciate and evaluate higher education: teach. guidances / ed. T. Dobko, M. Golyvyanko, O. Kaykova, V. Terziyan, T. Tihonena. – Lviv : Publishing "Company "Manuscript", 2014. – 572 p. ISBN 978-966-2400-37-3
- [5] Kofanova, O.V. Chemical training of future environmental engineers: theory and practice [Text]: monograph / O.V. Kofanova. – K. : NTUU «KPI», 2012. – 400 з. ISBN 978-966-622-539-2
- [6] Mitryasova, O.P. Building the content of education students in the context of environmental competence approach / O.P. Mitryasova // Scientific and Methodological collection: Problems of education. - K. Institute innovative technologies and content of education, 2012. – Is. 71. – P. 14–19.
- [7] Legal basis of implementation of the Bologna Process in Ukraine: Monograph / V. Burov, A. Gozhik, K. Zhdanova, I. Zarubinska, V. Zaharchenko, S. Kalashnikova, O. Koziyevska, I. Liova, V. Lugoviy, O. Orzhel, Y. Rashkevich, Zh. Talanova, S. Shitikova; general ed. V. Lugoviy, S. Kalashnikova. – K. : SE "SPC "Priority", 2014. – 156 p.
- [8] Rashkevich, Yu.M. The Bologna Process and the new paradigm of higher education monograph / Yu.M. Rashkevich. – Lviv: Publisher Lviv Polytechnic, 2014. – 168 p. ISBN 978-617-607-628-5
- [9] Ridey, N.M. Step training for future ecologists: Theory and Practice Monograph / gen. ed. ac. D.O. Melnichuk. – Herson : Publisher Audley-Plus, 2nd ed., 2011. – 650 p. ISBN 978-966-2393-40-8
- [10] Rudishin, S.D. State of environmental education in the practice of high school abroad / S.D. Rudishin // Bulletin of Zhytomirskoho State University named after Ivan Franko. – Pedagogical Sciences. – 2008. – Is. 40. – P. 81–85.
- [11] University education in Ukraine and the Bologna Process: a tutorial and a glossary of terms / ed. A.F. Golovchuk. Authors.: A.F. Golovchuk, T.D. Ischenko, O.O. AkImov, V.V. MarenIchenko, M.P. Homenko. – K. : Agricultural Education, 2007. – 83 p. ISBN 966-7906-28-0
- [12] <http://www/let.rug.nl/TuningProjekt/index.htm>.