
Management of Ecologization of Professional Education

**Gaini K. Dlimbetova¹, Kulzhanat N. Bulatbayeva¹, Saulet U. Abenova¹,
Guzaliya Zh. Fahrutdinova^{2*}, Anvar N. Khuziakhmetov²**

¹ L.N. Gumilyov Eurasian National University, Astana, KAZAKHSTAN

² Kazan (Volga region) Federal University, Kazan, RUSSIA

* Corresponding author: gdautova@mail.ru

Abstract

The relevance of the topic is due to the significance of the transfer of the entire university system to a “green mode” of activity. The aim of the article is to discover ways of organizing conditions for modernizing the consciousness of young people through an appeal to the environmental way of life of the Kazakhs, expanding the concept of the university’s environmental passport and including the environmental component in the content of educational programs and educational work based on the developed principles of training and education that directly depends from the correct management greening of vocational education. The leading method in the study of this problem is the modeling of the content of the activities of the university’s departments, taking into account their typical activities, disclosure of the relationship between the components of this model, that ensures consistency, regularity, continuity, the universal coverage of subjects, the effectiveness of environmentally oriented activities and determines the management greening of vocational education and also description of the methodological basis for the implementation of the developed content. For the greening of vocational education in the context of an expanded understanding of the ecological university passport and the creation of a “green university”, the content of each university’s structural unit — the administration and academic council, the department for supporting research projects, the department for scientific activities of the department for working with students, research centers, deans of faculties, departments, scientific and methodological council of the faculty, bachelor one master’s, doctorate is defined; the importance of the single approved work plan as the implementation of the management of greening vocational education is proved based on interrelated activities, the result of the implementation of such a plan is the formation of environmental awareness of students who are actively involved in the university’s “green mode” and volunteering to solve existing environmental problems of the region. Management greening of vocational education is necessary for each educational institution in order to ensure that young specialists of all spheres of society’s activities in the regions of Kazakhstan are greening, searching for and implementing effective ways to solve environmental problems, sharing positive experience between regions on this issue, organizing joint activities of universities on environmental problems and identifying issues for discussion on the national and international levels in conducting scientific forums.

Keywords: ecologization of professional education, ecological passport of university, “green” university, green mode of the university, management of ecologization of professional education

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INTRODUCTION

Kazakhstan is a unique country in terms of studying the historical experience of the indigenous population in the treatment of nature. The concept of transition of the Republic of Kazakhstan to a green economy is reflected in the article of the Head of State “A look into the future: modernization of public consciousness”. The global direction of the transition to the green economy, the restoration of the traditional approach of the Kazakh people to nature as an important condition for the existence of society is evidenced by the strategic direction of the international exhibition - EXPO-2017. Concern about the modern state of the environment and irresponsible attitude to the nature of our

contemporaries at all levels of activity (from management to the performer) makes us look for ways of forming ecological education through the spiritual consciousness of our contemporaries. On the historical experience of the ancestors in the above article, the President of Kazakhstan N.A. Nazarbayev (2017) said the following: “Modernization is impossible without changing a number of habits and stereotypes. For centuries our ancestors have preserved a unique environmentally correct way of life, preserving the habitat, the resources of the earth, very pragmatically and economically spending its resources” (Nazarbayev 2017). The President noted the importance of correlating the development of the economy with

complex issues of the environment. The ecologically correct way of life consisted in the fact that the Turks from ancient times in places led a sedentary way of life and inhabited the fertile territories for a living. And the nomadic way of life was dictated to a greater extent by natural conditions. So, for example, the nomadic way of life dominated in the deserts of the Gobi, Karakum, Betpakdala, Ustyurt. Thus, From the standpoint of social laws, Asan Ғаigy considered his native land as a shrine, left recommendations on the efficient use of land and water in accordance with the natural conditions and the possibilities of caring for vegetation (Baq.kz/kk/news/regmedia/ regmedia, which has been telling the story of Asan.)

In accordance with the ancient traditions of the ancestors, Kazakhstan has developed an Action Plan for the implementation of a “green economy”, covering all aspects of society: heavy and light industry, agriculture, services, transport, water management, etc. (Approval of the Action Plan for the implementation of the transition of the Republic of Kazakhstan to a green economy for 2013–2020, 2013).

According to the ancient traditions of the ancestors, in Kazakhstan, a concrete plan of measures for the implementation of the “green economy” has been developed, covering all aspects of society: heavy and light industry, agriculture, services, transport, water management, etc. A major problem today in Kazakhstan is the lack of systemic processing waste that pollutes the atmosphere. Until now, the issue of sorting the ejected waste has not been raised to a sufficient level. For example, only now is the question of opening kiosks for receiving empty packaging of cardboard, glass, plastic (in Astana in 2019, 22 points of reception of empty containers and other wastes are opened). At an insufficient technological level, the issues on the emissions of factories, concentrated, unfortunately, in large regional centers have been resolved. In this aspect, serious decisions are taken at the Government level in the form of various normative documents that are adopted considering the best international experience gained in modern living conditions: effective technologies, the organization of professional expertise for building comfortable green cities and villages.

However, the existence of any regulatory documents cannot be considered a complete guarantee of the environmentally correct organization of activities in the workplace and in everyday life outside of work. The most important driving force behind the implementation of environmentally directed plans of

the society is the people themselves with their spiritual need to save the Earth for the future generation. In this respect, it cannot be said that a collective consciousness has been formed about the need for joint social activity. Until now, there are no groups of volunteers actively involved in solving environmental problems on the ground.

Unresolved aspects in the field of ecology are solvable only in the systemic work with the younger generation, with studying youth, the future change of specialists in different spheres of society. It is quite well deserved today in Kazakhstan the issue of ecologizing education is being considered, starting from the pre-school period to the post-graduate stage of education (Dmitrieva et al. 2015, Khuziakhmetov et al. 2017, Lubnina et al. 2016, Yarullin et al. 2017, Zaitseva et al. 2017). Such attention on the part of the state ensures continuity, consistency, systematic and systematic in the formation and renewal of spiritual consciousness in relation to active environmental activities. This is a direct way to the sustainable development of the “green economy”.

Problem Statement

The ecological danger today is global. In this direction, greening is a planetary process that is designed to significantly influence the consciousness of young people. Every schoolboy, every student must understand his responsibility to the society for observing environmental rules in any life activity, for sustainable development of the green economy. We need a return of people to traditional values of careful attitude to natural resources, a skillful solution of the environmental problem in professional activity. Only the universality of the ecological consciousness will be able to lead the population of the Earth from the ecological crisis, when the development of the economy and the need to preserve clean air through filtration of production emissions, the creation of comfortable conditions for the movement of a person and the need to minimize the exhaust gases of cars, enter the contradiction.

“Ecologization of education” cannot be limited to the concept of “environmental education”. Ecology is now recognized as a universal science that has its rightful place in every science. Therefore, the term mega-ecology is used, raising this science above all, it has now become one level with the science of philosophy. The philosophical attitude to life and the preservation of life on Earth today is directly related to ecology. Therefore, ecology is considered a conceptual

science that underlies all sciences. Proceeding from these positions, the doctor of pedagogical sciences, Dlimbetova (2018) significantly expanded the concept of “ecological passport of the University”, including in its content consideration of environmental content (environmental component) in the educational program of each specialty (Dlimbetova 2018). In the source, the scientist shows the ways of ecologizing vocational education through known groups of specialties: it represents the typical content of environmentally oriented competence in the types of the profession “man-man”, “man-technology”, “man-nature”, “man-sign”, “man-artistic image”

The ecologization of education should directly lead to concrete actions of young people on ecologically expedient and effective influence in various spheres of society’s life activity. From such positions, the concept of “ecologizing education” should be viewed as a kind of conceptual approach designed to systematically solve complex tasks in environmental education and upbringing, in order to form new thinking and mentality of youth, to protect against eco-danger, to prevent ecocatastrophe, and human survival (Nazarbayev 2016). Proceeding from the foregoing, it follows that modern science, like production, is increasingly in need of qualified specialists with not only environmental knowledge but also ways to solve environmental problems in future professional activities. From the position of psychological science, it is important to consider that knowledge of technological solutions to environmental catastrophe provides an environmental component in training programs, and daily environmental behavior and specific actions to protect the environment is a spiritual need to promote the overall ecological movement. Consequently, among the students there should be developed a volunteer movement that affects the general consciousness of others. Volunteers should take patronage over schools, conduct environmental action.

In this regard, the greening of education, aimed at the development of environmental culture, environmental outlook and mentality - this is the environmental paradigm that applies to all areas of activity of educational institutions. The main methodological direction for the greening of Kazakhstan’s vocational education system should be the idea of universal readiness of future specialists to protect the environment as a result of their spiritual needs. This willingness should be based on a philosophical understanding of nature as an important factor in the well-being of the individual (Dlimbetova 2018).

Research Questions

One of the striking examples of the greening of education is the creation of “green” universities. The concept of “green University” involves the introduction of environmental practices in the University, its improvement, raises the level of eco-culture of students and employees. The concept is becoming increasingly popular in the world, and the world’s leading universities (Oxford, Harvard, University of Singapore) have long implemented its principles. “Green University” includes holding of positive eco-actions and eco-festivals, an organization of separate waste collection system, energy efficiency, implementation of eco-educational programs, landscaping and other areas. Many of the world’s leading universities are increasingly announcing the creation of “green” eco-sustainable and environmentally friendly campuses, considering it as part of educating students in the right direction (Rakhimzhanova and Dzhunnukhodzhayeva 2018).

Thus, the idea of “greening” for the sustainable development of the “green economy” of our country should be a common thread through all subjects of higher education. And if the idea of survival does not subdue all the content of education, then all knowledge and skills may be unnecessary (Podlasiy 1999). Today it is so important and significant that we can say that the time itself requires to actualize the problem of greening in the scientific, methodological, pedagogical, psychological, didactic aspect and which can become a new conceptual approach in education.

Purpose of the Study

The purpose of research is to reveal the features of management of ecologization of professional education, providing the transfer of the University to the status of “green University”. To do this, it is important to consider the regularity of all activities carried out at the University. We need a system of planned annual, quarterly, monthly actions to educate young people in the natural need to ensure a sustainable “green economy”, the impact on others to involve them in the group of “green”. To form such a high level of consciousness of young people, the entire staff of the University should be a single fusion of people who work obsessively to comply with environmental standards by each resident of the region.

METHODOLOGICAL FRAMEWORK

To this end, there is a need for a systematic solution to the problem of greening vocational education, starting from the theoretical development of mechanisms of implementation in the content of

training (Bakirova et al. 2018) and completing the practical activities of the teaching staff of the University (Shaikheslyamova et al. 2014) and students (Rakhimzhanova and Zhunuskhodzhayeva 2018).

To implement the conceptual transition to the “green University” it is important to develop a specific management of greening of vocational education, containing certain responsibilities of each structural unit of the University. If we consider the process of transferring the University to the status of “green”, it can be represented in the form of a pyramid. Above all departments of universities is primarily the University administration and Academic Council, which provides regulatory support for the initiative of greening education in the University. Approving a long-term plan for the greening of education. The result of the activities of the administration and the US will be the following: General management of the greening of education in the University; approval of the necessary documents for the greening of education (ecological passport of the University, long-term plan of greening education, mechanisms for creating a green campus, green University, etc.).

The Department of supporting scientific projects, which creates conditions for conducting research activities in the field of education greening, should be considered as an important guiding body. The content of the activity of this division of the University is the initiation of scientific projects and other research of environmental orientation in all specialties of the University. The expected result of the Department will be received by the departments of various kinds of grants (national, international) and organizational and documentary support of reporting.

The regularity and a certain periodicity of environmentally oriented activities are planned by the Department of scientific activities, which is designed to provide organizational support to the initiative of the faculty of departments in carrying out actions, conferences, seminars of environmental content; monitoring. The expected result of the activities of this Department is reflected in the General reports of the University, on the website of the University.

A key Department for the formation of environmental literacy through the modernization of the spiritual consciousness of young people should be considered the Department for work with young people. The essence of the activity of this Department is the planned organization of events for young people and the population with the participation of volunteer

environmentalists; initiation of student projects in the environmental direction; support for the initiatives of volunteer environmentalists.

The results of the activity are reporting and monitoring activities, the results are reflected on the site.

Ecological movement of the university should become an integral part of the Republican and then international movement. Responsible for expanding the activities of environmental volunteers, researchers and the inclusion of the university environmental movement in the overall international movement should be considered the Department of International Cooperation, which is primarily responsible for initiating the departments for studying international experience on the ecologization of education in the framework of concluded memorandums with foreign universities. The result of the work of this department is the periodic monitoring of Kazakh-foreign environmental studies.

Today Kazakhstani universities are an alloy of classical forms of professional training and conducting research and development activities. Universities have research centers of different directions, which must always take into account the ecological aspect of the problem is developed. The result of the work of these centers on the ecologization of education will be scientific works that reveal the possibilities of solving environmental problems in one or another area.

The largest organizational center for the ecologizational education can be the deans, who are responsible for the entire educational process, including education and upbringing. At the same time, the deans, responsible for all the faculty groups, which have the opportunity to conduct planned work on the ecologization of education. Thus, the content of the activities of the faculties is the organization of a planned annual educational and training work in accordance with the approved short-term plan for the ecologization of education (on the basis of the university's long-term plan). The results of faculties on the ecologization of education - the maintenance of reporting, the reflection of the work done on the site with the purpose of universal popularization of the environmental activity of the university.

The next large department of the university is the department. The average university has about 20-40 departments, which are responsible for the inclusion of the environmental component in the disciplines of the

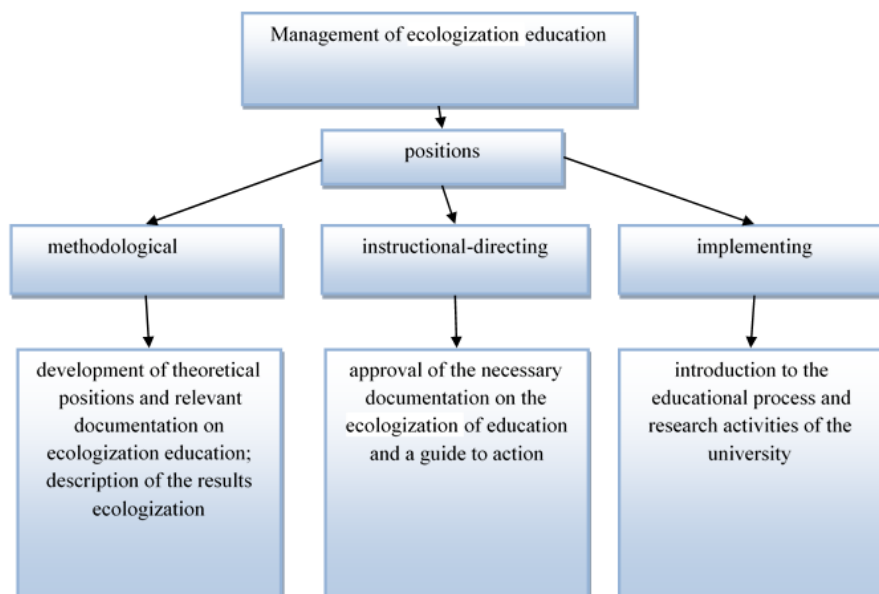


Fig. 1. Management ecologization of professional education

major studied in the specialties; exchange of experience on the ecologization of education through open classes, seminars. Expected results of the department's activity are the ecological component introduced in the Institute, the results reflected in scientific publications, the preparation, and publication of collective monographs, participation in scientific and practical conferences on the ecologization of education.

The scientific and methodological council of the faculty should be responsible for the ecologization of vocational education, the content of its work will be the inclusion of scientific and methodological seminars (SMS) in the annual plan (within the framework of long-term and short-term plans for the ecologization of education); discussion and review of scientific works of the ecological direction. The results of this SMS are the development of recommendations for the ecologization of education; recommendations for the publication of scientific works on the ecologization of education.

At the undergraduate level, students should be intensified in research activities to solve environmental problems; in participation in competitions and scientific events of the ecological direction; in the organization of events in student groups on the formation of ecological consciousness through spiritual renewal, the account of the experience of the previous generation. The results of their activities consist in the publication of scientific works, the conduct of various environmental activities, participation in eco-projects, the popularization of environmental student movements in the media.

At the level of postgraduate education – master and doctoral studies - it is important to increase the research

activity of undergraduates and doctoral students in solving environmental problems; Participation in scientific and practical conferences on the integration of professional and environmental activities. The result of the environmental focus in the master and doctoral studies is the reflection in scientific publications of ideas on the integration of professional and environmental activities. Such a planned organization of the ecologization of vocational education in all units of the university will ensure the systematic and continuous preparation of future specialists for real environmental activities in a particular sphere of production. For instance, such kind of active and coherent work on realization of continuing between schools, colleges and universities takes place in the L.N.Gumilyev Eurasian National University. The ideas of (Fakhrutdinova and Ruppel 2013, Shaikheslyamova et al. 2014) and the common research of (Bulatbayeva et al. 2018) were the bases of this activity. The active involving of schoolchildren and college students in the scientific and social events of the university is one of the forms of researching work. It is the result of volunteer activity of students held by them with schoolchildren and college students.

RESULTS AND DISCUSSION

Structure and Content of the Model

On the basis of determining the content of the environmental activities of all structural units of the university, a model of the management of ecologization education was presented. It includes three positions: methodological, instructional-directing, implementing (Fig. 1).

Stages of Implementation of the Model

The introduction of this model involved the following stages of experimental work:

- systematization of theoretical provisions on the ecologization of professional education;
- development of principles for the implementation of the environmental component in the content of professional education, contributing to the proper management of professional education;
- development of an environmental passport of the university, determining the environmental direction of the content of professional education by type of profession;
- the introduction of the environmental component in the educational process of the university.

Ascertaining Stage

At the beginning of the research an analysis of the activities of the university was conducted in the aspect of environmental education. In the course of studying the educational process, an inconsistency in the ecologization of professional education was revealed, there was no relationship between the structural units of the university in the work on ecologization of education. Under the “ecological passport of the university,” the teachers understood only the scheme of greening the territory of the university. For systematic work on the ecologization of education, principles were needed to incorporate the environmental component into the content of professional education. The analysis of educational and methodological complexes in various specialties has shown the inadequacy of accounting for the environmental content in the studied topics. In the work plans of the university departments, aspects of ecologization education were not dominant. There was no environmental student movement. The environmental component of educational and methodical complexes of non-specialized areas represented 1-2 topics of a general nature. Environmental education was planned and focused only on the department of management and engineering in the field of environmental protection.

Formative Stage

During the research work on the problem, the functions of all structural units of the university were identified. The interrelation of the activities of these units on the ecologization of professional education was

determined and theoretically described. The principles for the consideration of modern requirements for the training of specialists; the importance of skills in future work; the functional responsibilities of specialists in related fields of activity; universal and highly specialized skills in a particular field of professional activity; ensure personal growth; the principle of accounting for career growth; the latest technologies in the field of professional activity; consideration of environmental problems in the field of professional activity. Conducted significant work with all departments of the university. The work of the Youth Policy Center has been intensified (for example, student debates at the faculties on the subject “Student’s Ecological Lifestyle”), department of organizing scientific events, a scientific and practical seminar was held with the participation of representatives of departments and faculties, developed and presented programs of advanced training courses for the work of the Institute for Advanced Studies and Additional Education of the University, workshops were held with the developers of educational programs at the faculties, the activity of the department of international cooperation in relations with foreign universities in the framework of ecologization education has been intensified (Moscow State University named after M. Lomonosov, Russian University of Peoples’ Friendship, Kazan Federal University, etc.). Thus, the activities of all departments of the university are systematized in order to effectively manage the ecologization of education.

Control Stage

At this stage of the experiment, to determine the effectiveness of the management of ecologization education, diagnostic sections were carried out on the same aspects as at the ascertaining stage of the experiment. The data from the control slice showed progressive changes in comparison with the indicators of the ascertaining experiment. The results are reflected in **Table 1**.

The control in terms of qualitative and quantitative parameters shows that the management of greening vocational education will be systemic if the functions of the structural units of the university are determined. Thus, the management of greening education should become an integral part of the activities of the university for the sustainable development of society.

The result of theoretical developments on the problem of the ecologization of vocational education was the vigorous activity of student youth.

Table 1. The results of the work of the structural units of the university on the ecologization of education

Rectorate, Academic Council	Faculties: Faculty of Social Sciences; Faculty of Natural Sciences	Department of Social pedagogy and self-knowledge; Department of Management and Engineering in the field of environmental protection; Department of Chemistry; Department of Physical and Economic Geography	Youth Policy Center	Institute for Advanced Studies and Additional Education	International Cooperation Department
Approval of the activities of all departments of the university for the greening of education; the adoption of a broad understanding of the ecological passport of the University (for scientific practical seminar with the presence of Vice-Rector for Social Affairs)	Creating groups of environmental volunteers (18 active students), holding debates in student groups (10 events in 2018)	Educational and methodical complexes with environmental components (36); specialized educational and methodological complexes (28); Elective courses (22); The number of approved diploma works (15); The number of approved master's theses in the framework of ecologization education (10); number of doctoral theses as part of ecologization education (3)	Approval of the work plan with a group of volunteers for the 2018-2019 academic year	Development of programs for the ecologization education for specialists in various fields (4 programs)	Agreements of intent to cooperate with ENU named after L.N. Gumilyov with other universities and organizations for research in the field of ecology and environmental management, ecologization education (5)

CONCLUSION

Within the International scientific and practical seminar (Collection of materials of the international scientific and practical seminar, 2018) a contest of eco-projects was organized. For the activation of the students at all stages of the study, students of schools, students of colleges and universities were involved in the contest. 14 eco-projects of particular practical importance were selected for the contest, as the themes were aimed at solving urgent environmental problems in Kazakhstan. The authors of the projects were our students and students under the age of 20. These projects testify to the serious initiatives of the authors and their readiness to solve environmental problems on the territory of their country. They are: "Simulation of a treatment plant for biogas extraction based on wastewater treatment and processing" by Aitpai, Sadyk and Bolatova (2018), "Biogas - an alternative source of electricity and heat in the country's agro-industrial complex" by Orazbayeva and Ostapchuk (2018), "Energy and Environmental Alternative - "Biozavod" by Orazbayeva and Dikin (2018), «Active model of electric vehicle» by Orazbayeva and Pavlov (2018), "Blooming stop as a solution to environmental and aesthetic problems of Kazakhstan cities" by Kolomytseva et al. (2018), "Ecology of dwelling" by Mukhazhanova et al. (2018), "Smart Parking" by Orazbayeva and Narimanov (2018) etc. The participants of the contest showed creative ability in solving environmental problems in the surrounding world. Thus, the students initiated the creation of a bio-factory in Astana, developing a phased process of processing waste and transforming it into clean energy. To this end, they presented a model of the plant, consisting of multi-level objects, each of which performs the necessary function in a certain sequence

(garbage collection, packaging, pressing, packing and packing, thermochemical and biochemical processing of biomass in a huge machine). In another project, the scheme of a compact biogas plant is presented. A college student was able to develop a smart parking model in the city of Astana, the results of installing such parking lots are reducing congestion, reducing CO₂ emissions, an efficiency of parking capacity, additional parking services. A huge admiration was caused by the current model of the electric vehicle. The students show their genuine interest and specific research activity to the ecology of the dwelling, the blooming stoppage as the solution of ecological and aesthetic problems in the cities of Kazakhstan, the modeling of the treatment plant for the extraction of biogas on the basis of sewage treatment, etc. As we see, the solution of various environmental problems is already within the walls of the educational institutions, and such measures to stimulate environmental calculations should be massive.

RECOMMENDATIONS

Thus, the main methodological direction for the ecologization of the Kazakhstan's vocational education system is the idea of universal training of future specialists for the protection of the environment as a result of their spiritual needs, based on the traditions of Kazakh philosophy that considers a person's careful attitude to nature as an important condition for the well-being of the person himself.

To this end, the University's environmental passport should be a single integrated document that implements specially designed didactic principles, consisting of the described components and is intended

to become a guide for the ecologization of education in the university.

At the same time, the transfer of the university to the “green” mode of educational activity does not depend on autonomous units, but on the entire interrelated system of the university, on the planned work of the

university on the formation of ecological literacy of each student.

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