

Modern Approaches to the Pedagogical Designing of Modular Educational Programs of Higher Professional Education in the Republic of Kazakhstan

Gayan N. Gubaydullina^a, Anar B. Myrzagaliyeva^a, Karakat M. Nagymzhanova^a and Madina D. Aurenova^a

^aEast Kazakhstan State University named after S. Amanzholov, Ust-Kamenogorsk,
KAZAKHSTAN

ABSTRACT

Kazakhstan, having joined the Bologna Declaration in 2010, committed itself to modernize the higher education in general and make a fundamental change in the approach to the development of regulations, in particular, the educational programs. The article describes the basic concepts of the problem, provides an overview of the regulatory frame-work and grounds modern approaches and the design algorithm of educational training programs. The purpose of this paper is to provide information about the current reform of higher education in Kazakhstan, about the problems and deficits occurring in this area, and about ways to correct unwelcome developments. The paper provides a review of appropriate programmatic documents, on the one hand, and of the results of relevant empirical studies on the other. On this basis deficits and risks of the Kazakhstan higher education policy are identified and feasible solutions discussed.

KEYWORDS

The Bologna system, modular educational program, competence-based approach, student-centered approach, the modular structure of the program, credit numeration of learners' training load, results of education

ARTICLE HISTORY

Received 20 April 2016
Revised 28 April 2016
Accepted 9 May 2016

Introduction

The modern national higher education system of the Republic of Kazakhstan is developing in the context of the Bologna process. In this context, the realization of such parameters of the Bologna process as the integration the national education into the international educational space, synergy of unified educational and unified research space, expansion of academic mobility of students and teachers, the introduction of the European Credit Transfer and Accumulation System (ECTS – European Credit Transfer System), the introduction of credit technology, a modular design of educational programs in terms of the competency approach requirements. A focus on a close alliance with employers and etc. A content analysis of these parameters allows to distribute them into several groups with the philosophical and

CORRESPONDENCE Gayan N. Gubaydullina  gaina_09@mail.ru

© 2016 Gubaydullina et al. Open Access terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>) apply. The license permits unrestricted use, distribution, and reproduction in any medium, on the condition that users give exact credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if they made any changes.



didactic aspects. So, to the philosophical aspects of the Bologna reforms, the following ones can be attributed (Adam, 2008):

- the understanding the new mission of universities, values and meanings of higher education, its functions and roles;
- the approach to the student-centered paradigm of higher education;
- the introduction of a competence-based approach and the strengthening of the commitment of higher education to the "result".

Didactic aspects raised by the Bologna process are as follows (Bologna Declaration, 1999):

- the review and reconsideration of the content of higher education;
- the revision of the principles of designing educational programs, in particular, avoiding the disciplinary principle;
- the introduction of an interdisciplinary approach to teaching and learning;
- the nonlinear organization of educational process;
- the design and evaluation of educational programs and curricula in the ECTS as a transfer and accumulation of credit system;
- the increasing share of independent work of students.

The implementation of these parameters should serve as a mechanism to improve the quality of higher education and the country's integration with the European educational space, which is the main aim of the Bologna process.

Literature Review

According to the State obligatory standard of higher education of the Republic of Kazakhstan, the educational program is understood as a professional training program of higher and postgraduate education directed at training of specialists with the assignment of a qualification and (or) an academic degree (State obligatory standard, 2012).

The modular educational program is developed by a higher educational establishment according to the Dublin descriptors (Joint Quality Initiative, 2004) in coordination with the European frame of qualifications (European University Association, 2005) on the basis of the modular system of discipline studying.

The modular educational program is a set and sequence of the modules directed at mastering the trained competences necessary for the assignment of a qualification and (or) an academic degree (State obligatory standard, 2012).

On the basis of the international standards and the principles of Bologna Process, also taking into account the available researches in the field of pedagogical design, the following approaches to the design of modular educational programs are defined:

- the competence-based approach;
- the student-centered approach;
- the modular structure of the program;
- the credit calculation of an academic load of the learners.

Competences have to be the basis for the formation of educational programs. Competences are expected and measured concrete achievements of students (graduates) which define what the student (graduate), upon completion of studying

of an educational program, will be capable of doing. Thus it is necessary to show the connection between the results of training and the acquired competences, as demanded by the Dublin descriptors. They represent the description of the level and volume of the knowledge, abilities, skills and competences acquired upon the completion of an educational program of each level of higher and postgraduate education, which are based on the results of training, the created competences, and the total of credit (test) units of ECTS.

Descriptors are concretized concerning each cycle of training in terms of results of training and competences. They are focused on five main results of training (BFUG, 2004):

- knowledge and understanding;
- the practical use of knowledge and abilities of understanding;
- the ability to estimate, assess ideas and form conclusions;
- abilities in the sphere of communication;
- abilities in the sphere of education.

In essence, they represent the coordinated requirements to an assessment of results of training on each cycle of training of higher education and can be applied with a bigger or smaller extent of specification.

The Dublin descriptors have to provide an orientation of training programs towards the identity of the student and concrete results of training, i.e. that what is called the student-centered educational programs. The main idea of a student-centered approach is that the emphasis is placed on the student and his ability to study. The maintenance of an educational program is defined by results of training and competences. In turn, they are formed proceeding from the maintenance of a concrete subject matter or the module of the program as well as from social tasks of formation in graduates of a civil maturity and employment ability. Thus the role of the teacher changes, too. With the student-centered approach the teacher stops being a systematization of knowledge and a key figure in teaching and training. Now the teacher gets an accompanying role for the acquisition of certain competences by the trainee. He acts as a consultant, an adviser, a facilitator (European University Association, 2007).

Thus, the competence-based approach to the design of modular educational programs naturally leads to the student-centered approach that corresponds to the parameters of the Bologna Process. The main idea of this approach consists in the fact that educational programs have to be focused on students, consider their priorities and labor costs, to give the trainee the opportunity to participate in a choice of the content of education, the definition of a way of development of the program, the speed and a place of training. Thereby the trainees have an opportunity to choose the educational trajectory of training (Bologna Process, 2007).

The introduction of competence-based and student-centered approaches to the design of modular educational programs naturally leads to a modular creation of programs that conform to the requirements of the State general education standard of formation of the Republic of Kazakhstan (State obligatory standard, 2012).

The backbone concept is the "module". What is the module? The module (from Latin modulus – a measure) is a separated, rather independent part of any system, organization, device, etc.

It should be noted that an all-European understanding of the term "module" does not exist. The module is considered to be (Goldschmid & Goldschmid, 1973):



- a group or combination of educational blocks limited by time, closed methodically and/or according to the contents, subject to studying;
- an educational unit which is purposefully formed in one or several disciplines;
- a connection of educational blocks coordinated with each other according to the contents;
- a functional unit connected with an individual educational trajectory of the learner;
- a didactic unit designed to connect the professional competences acquired by the student with professional activity;
- isolated educational units, but at the same time logically connected among themselves and directed at the acquisitions of certain professional skills and competences.

According to the principles of the Bologna Process and the methodology of the international Tuning Educational Structures in Europe project (Tuning Educational Structures in Europe, 2006), the module is a logically complete part of an educational program presented by a set of all types of studies trained and responsible for the formation of a certain competence or group of related competences necessary for the assignment of a certain qualification (or) academic degree.

In the Rules of the organization of educational process for credit technology of training, some types of modules (Rules of the organization of the educational process, 2011) are defined:

- the general obligatory modules (cycles of the basic disciplines forming the general competences which are not directly connected with the specialty);
- obligatory modules (the cycles of basic and main subjects forming a basis of specialty and directed at the formation of professional competences);
- optional modules for a certain specialty (the cycles of disciplines on individual profiling directed at the formation of possible competences within the specialty);
- optional modules outside the qualification (the cycles of disciplines which are not associated with the specialty and directed at formation of additional competences – information technologies, foreign language, self-management etc.).

A modular approach to the creation of educational programs gives them flexibility, systematization and logical sequence of development by students of subject matters. Beyond that, a modular approach to design of educational disciplines gives the chance for higher education establishments to establish their own requirements to the structure of modular educational programs and allows to abandon cyclic construction (Moon, 2002).

Modern approaches to the design of modular educational programs demand the consideration of their characteristics such as flexibility and comparability which is an obligatory requirement in the conditions of expansion of academic mobility, the fierce educational competition beyond national borders and the rapidly changing labor market. Flexibility and comparability of modular educational programs is reached by means of application of a unified unit of measure of an academic load trained (credits, test units). Hence, the following approach – credit calculation of an academic load trained – is certainly reasonable (Boletin Educaweb, 2001).

According to the European transfer and accumulation of credits system (ECTS), credit calculation of an academic load of the trainee should be understood as a unified way of accounting for labor input of educational programs by credit filling of disciplines and modules (Williams, 2002).

Studies of the experience of foreign countries show that use of the ECTS is possible on two levels. The first level is the formal introduction of the ECTS on the basis of recalculation of classroom loads in test units. The second level is the organization of the educational process on the basis of the credits.

An important role in the implementation of the Bologna process is played by the modular design of educational programs of three levels of professional education (Bachelor, Master and Doctorate PhD). As practice shows, during the development of educational programs Kazakh universities face a number of difficulties:

- different understanding of the concept of a “modular educational program”;
- disciplinary (cyclic) construction of educational programs;
- uniform requirements and approaches to the formation of the structure and content of educational programs and modules are not developed.

The purpose of this article is to consider modern approaches to the pedagogical design of modular educational programs of higher education of Kazakhstan

Method

To achieve the stated purpose, a range of methods is used:

- the analysis and systematization of normative documents;
- the study of scientific and educational literature, scientific publications;
- the study of the experience of Kazakhstan and foreign universities for the development of modular educational programs, modeling and design.

These methods of investigation allowed us to analyze and organize a large amount of documentation, in particular, normative documents governing the content and organization of the educational process in higher educational establishments of Kazakhstan, the curricula of undergraduate and graduate teaching specialties. The data obtained from the analysis and synthesis allowed to make a comparison of modular educational programs of domestic and foreign universities. The methods of modeling and design of educational programs are used in the study, particularly for pedagogical specialties of undergraduate and graduate.

Results

The socio-humanistic science of any country studies the problems which are specific to it. The domestic understanding of the nature and structure of modular educational programs has particular importance. The experience of domestic universities in developing modular education programs is relevant and very important, because in 2010 at the Bucharest Conference of Ministers of Education of the Bologna process, the official accession to the Republic of Kazakhstan took place. Thus, Kazakhstan was the first Central Asian state to become a member of the Bologna Declaration and a full member of the European educational space. Having joined the Bologna process, the participating countries tend to commit themselves to the implementation of its basic parameters. A scoping study of the material on the use of credit units and the implementation of a competence approach in foreign universities showed the following: much less attention is paid to the disclosure of



the principle of modular training programs. People usually spoke about modules as something obvious. Often on educational websites of foreign universities a module is simply treated as an academic discipline. But more often the module implies a series of different forms of educational work and measures to control the development of appropriate competencies, estimated as a result of a certain amount of accrued loans. Let us try to systematize the foreign experience and give examples of the use of educational programs. It is necessary to take into account the significant differences in the general state of education.

The university system in the United States is currently least susceptible to radical changes. In the USA, there are practically no reforms similar to the "Bologna process" in Europe, there are discussions regarding the need for a "fundamental transformation" of the system of higher education. Adjustments in training are made during the occurrence of the relevant issues, they are experienced as tactical ones rather than strategic, perceived by the university community as a usual, regular, normal fit into the dynamics of the university educational programs, which is always mobile and timely exposes additions and corrections (Adelman, 2009).

1. The British educational tradition occupies an intermediate position between the American system, on the one hand, and the "continental" educational traditions, on the other. At the moment, the British education system, like that of the USA, does not carry out a radical reform. It is known that UK universities are characterized by stability, deliberate commitment to traditional forms of education, a kind of conservatism, focusing on precedent, prevailing over the desire to innovate (Ravinet, 2008).

2. The term "module" is actively used in the educational programs of UK universities. Many of them are moving to the principle of modular training in recent years. This structure provides high flexibility in the selection and combination of training courses.

Modular educational programs in British universities are independent training units, their term of development, which usually lasts one semester, is evaluated at 10 credits. For each academic year, students usually have to accumulate 120 credits. Several modules are compulsory for the development (core modules), but students can choose other courses from a wide range of optional modules (optional or voluntary) in order to get the required number of credits for the year.

The continental European educational systems need structural reforms. At the main universities in continental Europe – Germany, France, Italy, there are processes related to the modernization of education. The term "module" can often be found in the educational programs of Germany. The modular principle is important at the stage of creating a new educational program. To open it, the faculty is preparing a package of documents describing its concept, the structure of the curriculum (Guth, 2006).

This application are consistently considered and approved: by the faculty committee on Science and Education, the Council of the Faculty, the University Commission for Education and Science and, finally, the Senate of the University – the supreme governing body. In this case, for the approval of such requests only two formal principles are compulsory: the existence in the program of a modular structure and the accumulation a system of credits in accordance with the ECTS (European Credit Transfer System).

The list of disciplines within the modules, their volume in hours, the ratio of classroom and extracurricular load is not regulated, unified and motivated in each case. This motivates the authors of the project of each new educational program not to follow the initially given formal and meaningful parameters (weekly load, list of disciplines, etc.) of the educational program, and consistently justify the fact that it is expedient within the objectives of the specific program.

Thus, the study of international experience is a prerequisite for finding the most appropriate and effective models of modular educational programs for universities of Kazakhstan.

In scientific researches, pedagogical design is treated as purposeful activities for the formation of the resources of a pedagogical system (standard, educational and methodical, personnel, information, material, etc.) providing effective achievement of planned results.

Within our work, the modular educational program acts as the object of pedagogical design.

It should be noted that the main normative documents are provided in the higher education system of the Republic of Kazakhstan according to the international standards and the principles of the Bologna Process (Bologna Declaration, 2009).

The standard and legal base of the educational programs design in the higher education system of the Republic of Kazakhstan includes certain documents: the State general education standard of formation of the Republic of Kazakhstan. Higher education. Bachelor degree. Basic provisions (approved by the resolution of the government of the Republic of Kazakhstan No. 1080, August 23, 2012); Rules of the organization of educational process for credit technology of training (statement order of the Ministry of Education and Science of the Republic of Kazakhstan No. 152, April 20, 2011).

We will specify the essence of the concept of "educational program" and "modular educational program".

Nowadays in Kazakhstan the problems of the first level, associated with the development of the Kazakhstan system of credits transfer (a re-offset of the credits obtained in foreign higher educational establishments) that has to provide recognition of the Kazakhstan diplomas in the international labor market and the academic mobility of students, undergraduates, doctoral candidates due to the creation by them of an individual trajectory of a choice of educational programs, are being solved.

So, about 140 credits contain educational programs of a bachelor degree of Kazakhstan, including practice and complete state certification, thus 128 credits or 5760 hours are allocated to theoretical training. The academic load in four years in a bachelor degree makes up about 6500 class periods. In the ECTS system 30 academic credits are allocated to a semester, 60 to a year. To receive the academic degree of bachelor it is necessary to accumulate not less than 240 credits in four years of training, the annual student's load changes from 1500 to 1800 hours in a year and one credit is usually estimated at 25-30 hours. Thus, in a bachelor degree the general academic load of the student in four years makes up 6000-7200 hours which is quite commensurable with an academic load of students in the Kazakhstan system.



The implementation of the ECTS of the second level is associated with the organization of the educational process on the basis of the credits. The ECTS system assumes not only the calculation of an academic load of each discipline and the corresponding number of the credits, but also the detailed description of all educational programs. The description includes: the objective and tasks of studying the discipline, its contents, pre-requisites and post-requisites, different types of independent work, program assessment methods.

In Kazakhstan, work on the recalculation of test units (credits) at two levels, both for specialties of a bachelor degree and for specialties of a magistracy, is conducted.

This approach allows not only to compare educational programs, but also to reread the results of training during the student's change of the educational trajectory, when students transfer from one higher educational establishment to another, during the implementation of academic mobility. In other words, credit calculation of an academic load of the trainee is directed at the accounting of interests of students and allows to provide the transparency and comparability of modular educational programs in the course of academic mobility.

Thus, as general recommendations to the design of educational programs, Kazakhstan higher educational establishments are offered to adhere to a set of approaches: competence-based, student-centered, modular and credit calculation of an academic load of the trainee.

Based on the designated approaches which can be considered as methodological approaches, it is also important for higher educational establishments to observe the modular educational programs design algorithm. The design algorithm includes certain stages.

At the first design stage, national and regional requirements of labor market and potential employers come to light. It is important to consider the opinion of employers and to involve them in the formation of a set of competences of the graduate of a concrete specialty. The analysis and assessment of intellectual, infrastructure and information resources of higher educational establishment is important during design of modular educational programs.

The obtained information allows to pass on to the second design stage, which is a definition of the objective, tasks and the list of the general, professional and additional competences which act as results of training.

At the third design stage, the academic contents (knowledge, abilities, competences), modules, credit filling of disciplines and modules are formed and described.

We will give a modular breakdown of the block of general education disciplines of an educational program unified for the Kazakhstan higher educational establishments as an example. The cycle of general education disciplines is directed at the formation of all-educational, world outlook competences and is unified for all specialties of higher educational establishments.

This block includes the following modules:

The 1st module – language – 12 credits (the Kazakh, Russian and foreign languages);

The 2nd module – political disciplines – 10 credits (history of Kazakhstan, philosophy, political science and sociology);

The 3rd module – obligatory disciplines – 7 credits (fundamentals of health and safety and ecology, information technology);

The 4th module – economical and legal disciplines – 4 credits (fundamentals of law, basic economic theory);

The 5th module – optional disciplines – 2-3 credits (cultural science, self-knowledge, psychology).

At the fourth design stage it is necessary to create a methodical support for all modules of the program.

At the fifth design stage, a modular educational systematic monitoring of the trained knowledge, abilities and competences is provided. According to the results of the monitoring, there is an update of contents and structure of educational programs.

To increase the efficiency and improve the quality of the modular educational programs it is necessary to periodically carry out a program assessment. It includes three main measures: educational process, resources, tools and implementers of educational programs, results of training. The assessment of the educational process assumes the analysis of all directions of higher educational establishments for the implementation of an educational program.

The assessment of the resources and means necessary for the implementation of the program assumes the analysis of intellectual, academic, material and technical resources of higher educational establishments.

The assessment of the results of training assumes the analysis of the level of trained progress, the analysis of the ratio of those who successfully mastered and not mastered the program, percentage in terms employed directly in the specialty.

In the context of the above-named approaches to the design of modular educational programs, it is reasonable to pay special attention to such a key aspect of a modular educational program like planning of training results.

As S. Adam (2008) notes, the results of training are formulations of what the trainee is expected to know, understand or be able to show at the end of the training period.

The new generation educational programs corresponding to the international level have to be formed according to the Dublin descriptors and coordinated with the Frame of qualifications of the European Space of the Higher Education (ESHE). Thus the authoritative opinions of representatives of both the academic and professional community has to be considered.

In the European space of higher education there is no concept of the State obligatory standard of value, habitual for the Kazakhstan academic community. Fundamental is a concept of "frame of qualifications". What is a "frame of qualifications"? The frame of qualifications is a system and is structured on a level description of the recognized qualifications.

The European frame of qualifications was developed in 2004 by the Ministers of Education of 32 countries of the European Union to ensure the recognition and transfer of the qualifications covering professional (basic, secondary, higher) education. The European frame of qualifications is focused on lifelong learning and contains descriptors on 8 levels of qualifications. Each level has the description based on the concepts of: knowledge, abilities and competences. 6-8 level belongs to



the higher education (6th level –bachelor's degree, 7th – master's degree, 8th – doctor's degree) (Bologna Process, 2005).

The European frame of qualifications is the basis for comparison and recognition in different countries of education results (knowledge, competences). The main idea realized in this approach is as follows: it does not matter what formal training of people received (the number of hours, spent in classrooms, programs, rules and procedures), the result is important – what exactly he or she is able to do and how good.

Thus, the results of training which have to correspond to the European frame of qualifications are regarded as ones of paramount importance. How do results of training and competence correspond? Firstly, the results of training describe competences which have to be created during the course of studying a discipline and/or an educational program. Competences are a synthesis of the properties, abilities, skills and belief, views which are trained (a level of the personality). Secondly, the results of training are formed by the teacher and competences are gained by students on the basis of the received results and practical experience.

An objective and competent definition of the results of training will allow to designate the academic role of educational programs and their importance for external consumers – employers and students. In this regard, the definition of results of training has to be based not only on the opinion of representatives of the academic community, but also those of the professional community. Results of training have to be followed by corresponding criteria of an assessment and guarantee recognition and their understanding both in a specific country and beyond.

While projecting the results of training, it is necessary to accurately designate their main components: cognitive, functional and affective (ECTS Users' Guide, 2005).

The cognitive component represents knowledge as a result of assimilation of educational information which is defined by a set of facts, principles, theories, concepts and practices in the related educational or professional activity.

The functional component is formed by skills which allow to put the acquired knowledge into practice.

The affective component is formed by competences as a dynamic combination of knowledge, skills.

Therefore, accounting of said components is obligatory during the design of modular educational programs.

The interrelation of results of training and factors influencing them is of importance. Here are a number of these factors :

- number of working hours, academic load;
- abilities and diligence of the student;
- number of students in the educational group;
- structure and sequence of the working curriculum;
- teaching methods;
- existence of modern technical means of training;
- organization of training (lectures, seminars, practical/laboratory researches);
- types of control and methods of evaluation;

- national and regional traditions.

All these factors influence the results of training measured by time (in terms of the credits) or progress (in terms of achievements level) to a certain degree.

The analysis of the listed factors allows to draw a conclusion that not only is it impossible to define one way to achieve the demanded results of training, but it is also undesirable. Taking into account internal and external circumstances and conditions for each modular educational program, it is necessary to achieve balance from the point of view of the mentioned factors, one of which is time. A combination of these factors varies for the different countries and for different higher educational establishments. Thus, various ways can lead to comparable results of training.

The modular educational program demands continuous monitoring, adjustment and assessment. It will allow guaranteeing that the demanded results of training can still be reached during a change of circumstances and/or conditions, i.e. during a change of one or more of the said factors. Monitoring, adjustment and assessment are important internal processes for which both teachers and students bear equal responsibility.

The fundamental base of training results design, which the developers of educational programs rely on, includes a number of documents: The National System of Qualifications (NSQ), the National Frame of Qualifications (NFQ), the Branch Frame of Qualifications (BFQ) and the Professional Standards (PS), all of them based on the European frame of qualifications. We will examine these documents.

The national system of qualifications is a set of mechanisms of legal and institutional regulation of demand and offer on the qualification of experts from the labor market.

The national frame of qualifications is the set of the achievements and skills presented by the main qualifications and qualification levels, based on the results of training.

The Bologna Process working group offered a comprehensive structure for the European space of higher education founded on the so-called "The Dublin descriptors". So, qualifications of the first cycle (bachelor), the qualification of the second cycle (master) and the qualification of the third cycle (PhD) are offered.

The qualification of the first cycle has to be awarded to students who:

- showed knowledge and understanding of the studied area;
- can apply the knowledge and understanding, demonstrate a professional approach in work or activities;
- possess the ability to collect and interpret relevant data;
- are able to inform ideas, problems and decisions to experts and non-specialists;
- possess the skills of training allowing to continue to study with a large degree of independence.

Qualifications of the second cycle are awarded to students who:

- showed knowledge/understanding providing a basis for originality in the development and application of ideas and also while carrying out scientific researches;



- can apply the knowledge and ability of the solution of problems in a new environment, in wider contexts relating to their area of training;

• are capable to integrate knowledge, overcoming difficulties arising therefrom;

- can clearly state the conclusions to experts and non-specialists;

- possess the skills of training allowing to continue study independently.

Qualifications of the third level are awarded to students who:

- showed a deep understanding of a perspective of the studied area and a possession of skills and methods of research of this sphere;

- showed the ability to conceive, develop, implement and adapt a real research process;

- made an essential contribution to original researches which have received a response in national and foreign editions;

- are capable to critically analyze, assess and summarize new ideas;

- can communicate with colleagues and the society in general regarding areas of professional knowledge;

- will be able to assist the technological, social and cultural development in the society founded on knowledge.

Thus, within the comprehensive structure, each country develops the national system of qualifications and a national frame of qualifications with a three-cyclic system of degrees in the higher education for the European higher education space. Each cycle possesses a dual function: to train students for the labor market and for further formation of competences.

Discussion and Conclusion

The creation and development of the National frame of qualifications and National system of qualifications is fixed in the education development strategy for the next decade (The Republic of Kazakhstan State education program development for 2010-2020).

Branch qualification is the structured description of the qualification levels recognized within a branch.

The professional standard is the requirements imposed on a skill level and competence, on the contents, quality and working conditions in a specific area of professional activity.

On the basis of the specified documents, the modular educational program is developed. The interrelation of these documents can be presented schematically as follows (Figure 1):



Figure 1. Interrelation of normative documents, MOP which are a basis for development

Thus, Kazakhstan higher educational establishments, taking into account the basic principles of Bologna Process, have developed their own approaches to and algorithms of design of modular educational programs. The developed approaches are considered as mechanisms of the assurance of quality of higher education in

general, and the academic freedom of the higher educational establishments and mobility trained, in particular.

The educational policy of Kazakhstan in the sphere of higher education is based on the basic principles of the Bologna Process and directed at the modernization of education. The structure of higher education of the Republic of Kazakhstan includes three education levels (bachelor degree-magistracy-doctoral studies of PhD) and, according to universal tendencies in system of global education.

The theoretical and methodological novelty of our study lies in the fact that we have identified and disclosed the main provisions for the development of modular educational programs in such aspects as learning objectives, selecting and structuring a learning content, organization of the educational process, monitoring and evaluation of the results.

The practical significance is determined by a high level of preparedness for the realization of the obtained results in the teaching practice, since all the modelling procedures are designed in the guidelines and may be used by the organizers, methodologists, teachers of vocational education to build modular educational programs. The results of the study formed the basis of the mass development of modular educational programs, built on a modular-competence foundation.

The higher education system works on the modernization of substantial installations and the formal principles of training of specialists with higher education, development of new approaches to the design of modular educational programs.

In general, modern approaches to the design of modular educational programs are directed at the further modernization of the higher education system and their reduction in accordance with the world practice.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Gayan N. Gubaydullina hold a PhD in Pedagogy at East Kazakhstan state University named after S. Amanzholov, Ust-Kamenogorsk, Kazakhstan.

Anar B. Myrzagaliyeva hold a PhD in Biology at East Kazakhstan state University named after S. Amanzholov, Ust-Kamenogorsk, Kazakhstan.

Karakat M. Nagymzhanova hold a PhD in Pedagogy at East Kazakhstan state University named after S. Amanzholov, Ust-Kamenogorsk, Kazakhstan.

Madina D. Aurenova hold a PhD in Psychology at East Kazakhstan state University named after S. Amanzholov, Ust-Kamenogorsk, Kazakhstan.

References

- Adam, S. (2008). Learning outcomes current developments in Europe. *Bologna Seminar Learning outcomes based higher education: the Scottish experience, 21-22 February, 2008*. Edinburg: Heriot-Watt University. Scotland.
- Adelman, C. (2009). The Bologna Process for US Eyes: Re-learning Higher Education in the Age of Convergence. Institute for Higher Education Policy.
- BFUG. (2004). Recommendations to the authorities of the European Bologna follow-up group. Strasburg: Capitale européenne.
- Bologna Process. (2005). From Bologna to Bergen. *Bologna Conference*. Policy Statement on the Bologna Process in the Bergen Round, Brussels.



- Bologna Process. (2007). *Bologna Process Stocktaking Report*. London: DfES.
- ECTS Users' Guide. (2005). *European Credit Transfer and Accumulation System and the Diploma Supplement*. Brussels: Education and Culture DG of the European Commission.
- European Universities Association EUA. (2007). *Trends V – Universities Shaping the European higher Educations Area*. Brussels: EUA Publications.
- European University Association. (2005). EUA's Position on the Development of a European Qualifications Framework for Lifelong Learning. Retrieved from http://www.eua.be/Libraries/policypositions/EUA_position_paper_on_modernisation_of_DIR_2005_36_EC_January_2012.pdf
- Goldschmid, B., & Goldschmid, M. L. (1973). Modular instruction in higher education. *Higher Education*, 2(1), 15-32.
- Guth, J. (2006). The bologna process: The impact of higher education reform on the structure and organisation of doctoral programmes in Germany. *Higher education in Europe*, 31(3), 327-338.
- Joint Quality Initiative. (2004). Dublin descriptors. *JQI-The Joint Quality Initiative Working document*. Dublin.
- Moon, J. (2002). The module and programme development handbook. Routledge: First edition.
- Ravinet, P. (2008). From Voluntary Participation to Monitored Coordination. *European Journal of Education*, 43(3), 353-367.
- Rules of the organization of the educational process for credit technology of training. (2011). Approved as the order of the Ministry of Education and Science of the Republic of Kazakhstan, 152p.
- Salamanca Convention. (2001). Formar las competencias profesionales. *Boletin Educaweb*, 71. European University Association.
- State obligatory standard of formation of the Republic of Kazakhstan. (2012). *The higher education Bachelor degree, 1080*. The basic provisions approved by the resolution of the government of the Republic of Kazakhstan on August 23.
- The Bologna Declaration of 19 June 1999. (2005). Joint declaration of the European Ministers of Education. Retrieved from <http://www.bologna-bergen>
- Tuning Educational Structures in Europe. (2006). *Phase 4: Curricular Reform Taking Shape. Learning Outcomes and Competencies in Higher Education*. Brussels: EUA Publications.
- Williams, Peter. (2002). Transparency for European Higher Education. Madrid: Council of Universities.