МРНТИ 14.35.07 DOI:10.59787/2413-5488-2023-44-4-7-19

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DESIGNING OF INTEGRATION TECHNOLOGY OF APPLIED BACHELOR'S DEGREE INTO THE HIGHER EDUCATION SYSTEM AND A MODEL FOR ITS DEVELOPMENT

Abstract: Modern issues of training personnel with secondary qualifications are of great relevance for higher and postgraduate education in Kazakhstan. The article provides a technology for integrating applied bachelor's degree into the higher education system, and a model for its development. Using modeling methods, the corresponding multi-stage technology of integration of applied bachelor's degree into the higher education system as its short cycle, and the structural model of applied bachelor's degree development were designed. A methodological concept of embedding the applied bachelor degree in the system of higher education using competence-based approach and learning outcomes was developed.
The obtained results will help in restructuring the system of post-secondary education, thus contributing to the training of highly competitive specialists with applied skills for the country's economy.

Keywords: applied bachelor's degree, short cycle, integration into higher education, applied bachelor's degree model.

Introduction

The role of the applied bachelor's degree programs at personnel training for the economy is determined by training of specialists ready for continuous learning and self-improvement, and building practical skills and competencies that can be immediately applied practically, as well as in-depth studying of specific disciplines relevant to a particular industry or profession. In this regard, applied bachelor's degree programs play a very important role in the innovative economy, as compared to traditional (academic) bachelor's degree programs, they have such advantages as:
- flexibility, variability of programs;
- practice-oriented nature of programs;
- reducing the period to enter the labor market for young people [1].

The flexibility of the applied bachelor's degree programs is achieved through the use of a modular approach, which implies courses with adaptive and mobile-friendly content. This approach provides an opportunity to replace individual elements of the program, primarily variable subjects, whole modules or even parts of a particular module.

The concept of "applied bachelor's degree" in Kazakhstan and abroad has its own peculiarities. The issue of implementation of the applied bachelor's degree in higher education system remained under the jurisdiction of TVPSE (Technical and Vocational, Post-Secondary Education) for a long time. However, in a number of countries it belongs to a short cycle of higher education.

In Kazakhstan, the training at applied bachelor's degree programs is provided by the system of post-secondary education, according to the current legislation.

For the first time the concepts of "applied bachelor's degree" and "applied bachelor" awarded to persons who have mastered educational programs of post-secondary education, were introduced in the Law of the Republic of Kazakhstan "On Education" [2] in November 2015 (with amendments and additions as of 13.11.2015).

In May 2016, these concepts appeared in the State Compulsory Standard for Technical and Vocational Education and Post-Secondary Education [3].

The State Compulsory Standard for Technical and Vocational Education and Post-Secondary Education reflected the possibility of implementing educational programs of post-secondary education aimed at training an applied bachelors among citizens with secondary education (general secondary or technical and vocational education). At the same time, differences in the model curricula were allowed, considering training of specialists of applied bachelor, middle level, or advanced level of qualification on the basis of vocational education. The state obligatory Standard of technical and vocational education and post-secondary education provided that upon completion of the applied bachelor's degree program, the graduate is awarded the qualification of applied bachelor (junior engineer).

An applied bachelor's degree may also become the best option for individuals with a non-classical educational pathway with long breaks in education or career changes, as well as for those who have accessed higher education through the recognition of their professional qualifications (professional experience and secondary special education).

However, there is a big problem related to the transition from NQF level 5 to level 6 for tertiary education. Applied bachelors have no advantages for continuing their studies at higher education institutions and are admitted just like mid-career professionals (NQF level 4).

In this regard, students enrolled in an applied bachelor's degree program in the TVET system have no possibility to attend higher education (dead-end learning path). This is fraught with subsequent frustration for them and problems with sustainable integration in the labor market. In addition, providers of applied bachelor's programs do not possibly conduct information work effectively, as the main channel of dissemination of information on applied bachelor's degree remains informal - family, friends, and acquaintances.

There is also an aspect related to the indirect indicator of satisfaction with applied bachelor programs by graduates. Perhaps, applied bachelor programs do not sufficiently meet the expectations of the labor market, which leads graduates to think about the wrong choice of study program; the problem possibly lies in the low status of some working professions in Kazakhstan. This issue requires a more in-depth study and analysis of applied bachelor's degree programs and the overall situation with working professions in the country.

A systemic solution to the issue is integration of applied bachelor's degree into the system of higher education as short cycle according to the experience of a number of EHEA countries. In this way it is possible to solve the problem of training personnel with instrumental knowledge and increase the attractiveness of applied bachelor's degree as a level of NQF. For this purpose, it is necessary to develop technology and model for the development of applied bachelor’s degree, which is the subject of our research.

Research methodology and methods.

The study included two stages: the first onewas to analyze scientific literature, regulatory and legal documents, Bologna Process sources in the field of post-secondary education. Theoretical methods comprise a review of scientific literature, review and analysis of documents regulating applied bachelor’s degree; content analysis of secondary data.

The results obtained during the first phase were used to develop a technology for integrating applied bachelor’s degree into the higher education system, and a model for its development, which was the second phase of the study. Using modeling methods, the corresponding multi-stage technology of integration of applied bachelor's degree into the

higher education system as its short cycle, and the structural model of applied bachelor's degree development were designed.

Literature review

The last quarter of the XX century raised the necessity for radical modernization of education systems caused by the rapid development of new technologies. In modern conditions, skilled workers should not just be able to perform a set of operations, but also adequately perceive changes, be ready for innovations, and understand how technologies change [4].

One of the solutions to the problem of imbalance between theoretical and practical training of graduates is implementation of short-cycle programs focused on practice and providing students with professional knowledge, skills and competencies that facilitate access to the labor market [5]. In a number of countries these programs are called applied bachelor's degree programs (in the thesaurus of other countries - technical, professional bachelor's degree program).

In economically developed countries, applied bachelor's degree appeared almost half a century ago: in the 1970s, as production became more sophisticated, the need for highly qualified middle-level specialists grew. This trend was true not only in high-tech industries and rapidly developing service sectors (tourism, consumer services, banking and finance, insurance, public transportation, health care, social security), but also in traditional fields such as management, manufacturing, trade and construction. However, applied bachelor programs are most common for technical sector [6].

Finley [7] argues that applied learning experiences can be integrated into the liberal arts curriculum, providing students with critical thinking and communication skills that are valued in the workplace. By combining theoretical knowledge with practical skills, students are better prepared for the employment.

According to OECD data, more than 40% of the population aged 19-20 in almost half of OECD countries are enrolled in tertiary education. At the same time, 17% of first-time entrants to tertiary education enter short-cycle programs [8].

The Paris Communiqué of the Bologna Process Ministerial Conference noted that "…ECTS-based short cycle qualifications play an increasingly important role in preparing students for employment and further studies as well in improving social cohesion by facilitating access for many who would otherwise not have considered higher education".

A number of authors have considered applied bachelor's degree in conjunction with dual education. For example, researchers [10] identified, systematized and recommended further ways to improve the system of dual education at the level of applied bachelor's degree in the Republic of Kazakhstan.

Short-cycle higher education has been largely neglected in the literature, and yet it serves a growing number of students in Europe. Some studies [11, 12, 13, 14, 15] discuss the realities and challenges of short-cycle higher education in the European Higher Education Area.
Therefore, the review of literature and legal acts shows that the problem of integrating the applied bachelor's degree into the higher education system as short cycle is very relevant.

Results and discussion

The technology of integrating applied bachelor's degree in higher education as short cycle programs

The integration process of applied bachelor's degree into the higher education system is not a simple mechanical step. It is necessary to synchronize the principles and visions of building an applied bachelor educational program with competency-based approach of academic bachelor degree. Therefore, applied bachelor programs should be written in the language of learning outcomes, describing the planned specific achievements of students -

knowledge, skills and abilities that graduates will possess after the program, and what competencies they will obtain. ECTS should be used to synchronize applied and academic bachelor's degree programs. Considering the focus of the applied bachelor's degree on the labor market demands, it is necessary to provide flexibility of the program, as well as possibility of including micro-qualifications, distance learning opportunities and MOOCs. These conditions would allow the graduate to fully start work in the profession from the first employment.

It is also necessary to build an effective student support system. Today, students of applied bachelor's degree programs study on a fee basis: at their own expense, or at the expense of sponsors. There is no state-commissioned education provided for them. For this reason universities should provide students with all possible support, including system of counseling and searching for financial support within the framework of enterprise-connissioned orders.

In order to analyze the mastering of the educational program by students it is necessary to conduct regular assessment of their knowledge and determine which modules are difficult to learn. Then, to work on the improvement of the educational process on the basis of feedback.

Collaboration with employers' organizations remains an essential element and should start at the stage of program development. Employers should clearly formulate a set of skills and knowledge their future employees should have. University developers of the program should include it using learning outcomes. Subsequently, when implementing the program it is necessary to involve employers as trainers of practical blocks of the program.

An important issue is the accreditation of applied bachelor's degree programs. Since the applied bachelor's degree is integrated into the higher education system, it should meet all standards of internal and external quality assurance and undergo regular accreditation.

In our opinion, the technology of integrating applied bachelor's degree in higher education as short cycle programs should include the following stages (Fig. 1):

1) Legislative integration of the applied bachelor's degree into the higher education system:

a) In order to successfully integrate the applied bachelor's degree into the higher education system with its recognition as short cycle proprams, it is necessary to solve the issue of delimitation of competencies between the Ministry of Education and the Ministry of Science and Higher Education for training at NQF level 5, as well as competencies transfer for the development of state generally binding standards for post-secondary education to the Ministry of Higher Education.

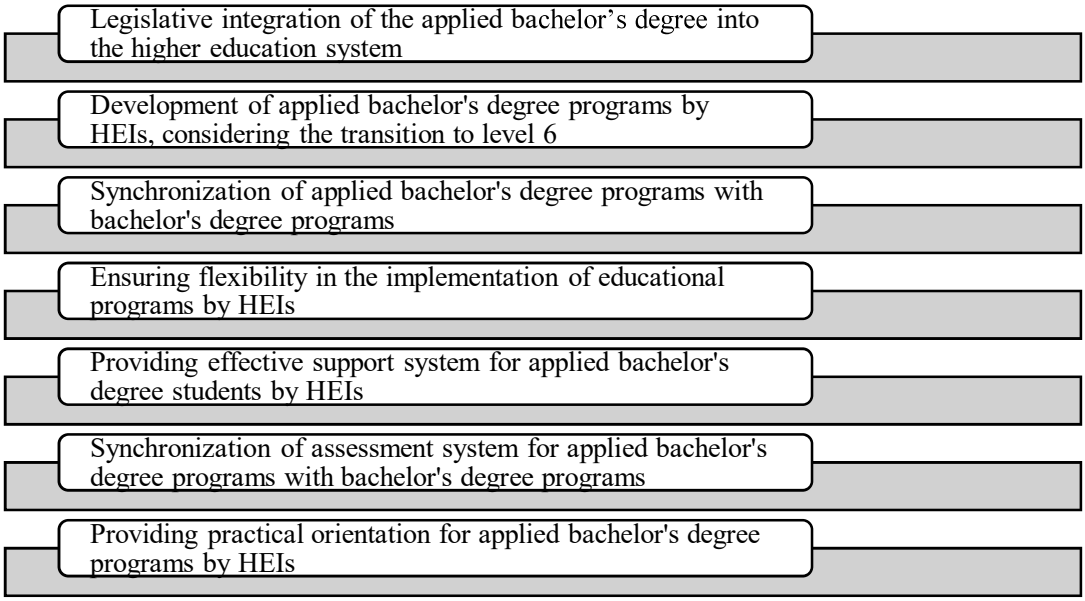

Fig. 1. The technology of integrating applied bachelor's degree in higher education

b) it is necessary to make amendments and additions to the following normative legal acts:
- Model Rules for the Activities of Organisations of Higher and Postgraduate Education: to add the provision on implementation of applied bachelor's degree programs by HEIs with further credit transfer;
- Rules for the Organization of the Educational Process in Higher Education Institutions Using Credit Transfer in Education: to supplement the procedure for the educational process organization of applied bachelor's degree;
- State Obligatory Standart of Higher and Postgraduate Education: to supplement with the State Obligatory Standard of Applied Bachelor Degree (at present State Obligatory Standard of Post-secondary Education is approved by the order of the Minister of Education and refers to the level of TVET);
- Model Rules for Admission of Students to Higher Education Programs: to supplement with simplified procedure for admission to bachelor's degree programs for shortened terms of study on related programs with the recognition of learning outcomes and credit transfer of applied bachelor's degree programs.

2) Development of a short-cycle program using competence-based approach and focusing on learning outcomes, as well as taking into account the correlation with the EHEA QF short-cycle descriptors. It is necessarily to consider the continuity of applied bachelor degree programs with the Level 6 programs.

Program development includes following steps:

a) Identification of current and future market demand:

- to study the need for applied bachelor's degree level specialists as well as modern and future requirements for them;
- employment prospects of graduates;

b) Analysis of the personnel training market: technical and vocational education, post-secondary education and bachelor's degree:

- on the presence of competitors in the market of personnel training at the national and regional levels;
- opportunities and threats in the implementation of the program;
- strengths/weaknesses of competitors

c) Analysis of HEI's capabilities for the implementation of the program:

- availability of necessary human resources;
- availability of necessary material-technical, information and financial resources;
- compliance of the possibility to implement the program with the requirements of Part 1 of ESG (Standards and Guidelines for Internal Quality Assurance)/accreditation standards.

After analyzing the relevance, personnel training market and capabilities of HEIs, the Academic Committee for the program development is created to design, develop and improve the educational program.

The Academic Committee includes:

1) representatives of the HEI from among the faculty members. In order to ensure an interdisciplinary approach, representatives of both specialized and providing general education and basic training academic units (departments, schools, etc.) are involved;
2) representatives of students;
3) representatives of employers;
4) representatives of specialized state bodies (if necessary).

The Academic Committee should review the documents for the formation of competencies (domestic and foreign NQFs, Sectoral Qualification Frameworks and Professional Standarts; State Obligatory Standarts of Education; Qualification Requirements for Positions, etc.), identifying professionally significant competencies. At the same time, the main job functions are reflected at competences and learning outcomes.

The most important stage of program development is formulating the program learning outcomes based on the detailing of competences, as well as the definition of the relationship between learning outcomes and assessment criteria.

Each learning outcome should be measurable and have criteria for assessing its achievability. For this purpose, methods and means of assessing the achievement of learning outcomes are designed (using measurable assessment methods based on specific criteria).
Resource needs are determined by the qualification requirements for educational activities.
At the next stage, the content of program is designed in accordance with learning outcomes, and methods and strategies of teaching and assessment.

When forming the content of the program (courses, etc.) it is necessary to take into account that the program of applied bachelor degree is practice-oriented, so a high level of practice-oriented content is provided (not lower than 80%).

Also, when developing the program special attention is paid to the graduate's competence model design for applied bachelor degree program defining the relationship between competencies, learning outcomes, methods and criteria for evaluation.

3) Synchronization with the bachelor degree.
At the stage of synchronization with NQF 6th level (Bachelor's degree) it is necessary to pay attention to the establishment of bridges between the short-cycle program and the regular Bachelor's degree for the possibility of transition and obtaining a higher degree.
For this purpose, it is important to maintain the ratio of general studies and core/specialized studies (16-17% and 80%) to enable a graduate of an applied bachelor's degree to continue further studies at the bachelor's with recognition of learning outcomes and transfer of credits after acquiring a certain number of credits.

Maintaining a low share of general studies (16-17 %) and a high share of core and specialized studies is necessary to provide an opportunity for students to acquire more complex professional knowledge, innovative thinking and soft skills.

4) Provision of flexibility of the program implementation by HEIs.
Provision of flexible study schedules, distance learning opportunities and student mobility to meet diverse needs at the applied bachelor level is important.
Providing the possibility to accumulate skills and additional credits by completing certain lifelong learning modules within the concept of lifelong learning will make the applied bachelor degree a more attractive level in the holistic learning process.

5) Support of applied bachelor's degree students by HEIs.
In order to increase the attractiveness of short-cycle programs, HEIs need to create support systems for students, including academic and career counseling, as well as financial assistance.
It is also necessary to systematically collect, analyze and disseminate information to students about short-cycle programs, including information on the average earnings of graduates and employment rates.

6) Synchronization of the assessment system of applied bachelor's degree with undergraduate degrees.

To ensure continuity and transfer of credits, it is necessary to bring the assessment system of applied bachelor's degree into uniformity with the undergraduate assessment system, i.e. introducing ECTS.

Providing regular feedback from students, teachers and employers is necessary to analyze the daily and long-term activities within the educational program.
Monitoring and quality control of all types of educational activities should be done as part of the internal quality assurance system of the university.

7) Provision of practical orientation of applied bachelor's degree programs by HEIs. For this purpose it is necessary to:

a) Establish close interaction with employers, providing practical opportunities and involving industry representatives in assessing the quality of the program;
b) Strengthen the university's partnerships with enterprises and organizations of the real economy sector and increase linkages in the professional-educational and business community as well as links with public associations and non-profit organizations expressing the interests of employers and professional communities;
c) Organization of meetings and surveys of employers in order to update the structure and content of educational programs;
d) Involvement of employers in teaching and implementing the dual training format.

If the above conditions are met, there will be a possibility of painless transition of NQF level 5 from the state of "post-secondary education" to the "short cycle" of higher education. This, in turn, will increase the attractiveness of applied bachelor's degree programs, ensuring the saturation of the labor market with specialists of instrumental level, junior engineers and, as a result, solving the issue of middle-level pfrofessionals' deficit.

At the same time, students will have an opportunity to obtain a profession in a short period of time and further continue their studies at an "accelerated" pace.
It will also enable HEIs to further improve the quality of the student population through selection from short cycle to higher levels of study.

Model design for the applied bachelor's degree development

The current model of the applied bachelor program provides 180 credits for high school graduates and 120 credits for college graduates as part of the state compulsory postsecondary education standards.

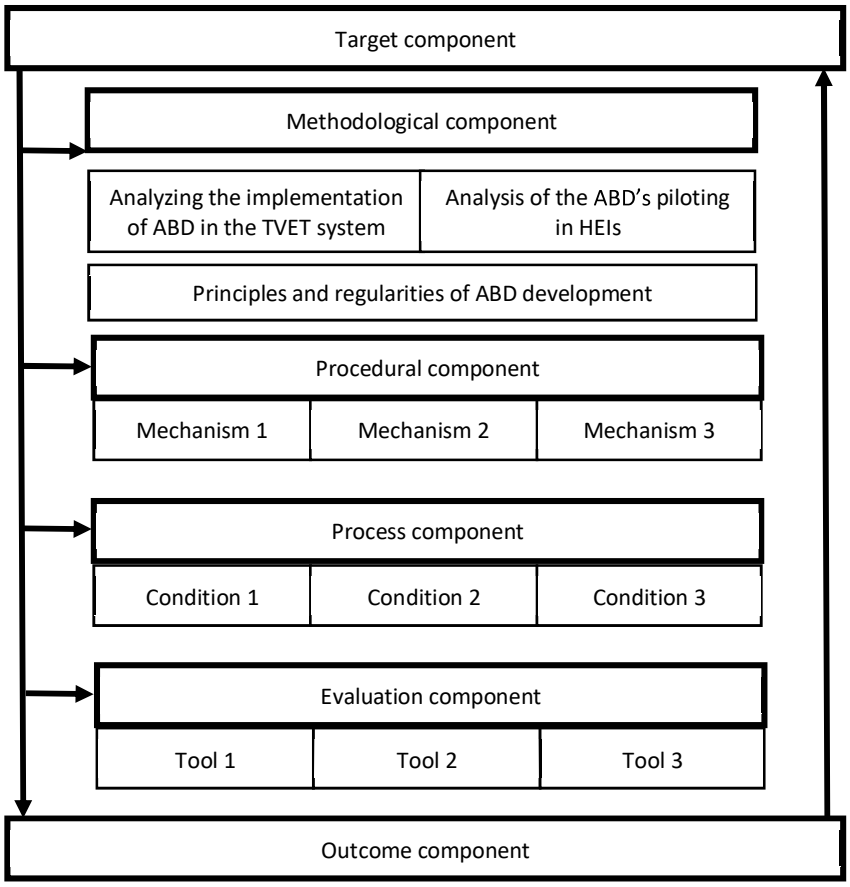

Fig. 2. Model Structure for the applied bachelor's degree development

The main goal of this program is to prepare a specialist to start production activity immediately after graduation without additional training. At the same time, graduates of the applied bachelor's degree should have sufficient theoretical knowledge that allows them to independently update their proficiency and acquire the necessary skills depending on the newly emerging production requirements. In this regard, the model of training of applied bachelor's degree should include the following steps:

1) determination of the purpose and relevance of applied bachelor's degree development;

2) analyzing the existing system of training on applied bachelor's degree program;

3) determination of mechanisms for further implementation at the level of higher education system;

4) determination of conditions for the development of applied bachelor's degree in Kazakhstan;

5) identification of tools for monitoring and evaluation of the development of applied bachelor's degree.

The above-mentioned components of the model can be structured as follows in accordance with the modeling theory (Fig. 2).

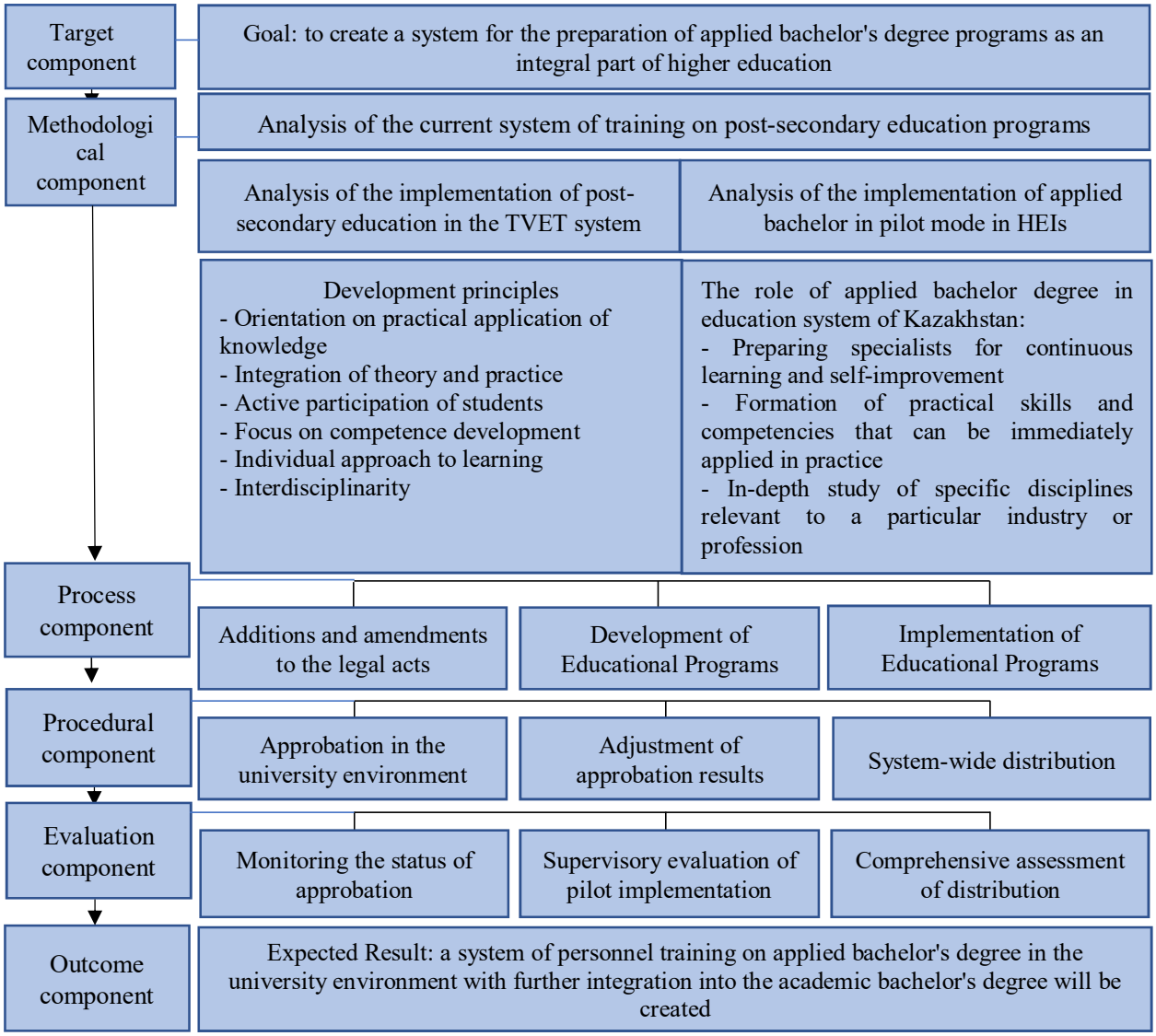

Fig. 3. Model for the applied bachelor's degree development

When modeling applied bachelor's degree development, the cross-cutting relationship of its components should be noted: each component is a part of the whole. Based on the research conducted in the and the above structure, the model of applied bachelor's degree development can be presented as follows (Fig. 3).

As can be seen from the model, the main goal is to create a system of personnel training on applied bachelor's degree programs as a higher education short cycle. Here, it is necessary to take into account the difference between applied and academic bachelor's degrees goals.

The analysis of postsecondary education status allowed us to draw conclusions that the peculiarity of applied bachelor is its increased practice-oriented base and short terms to obtain.

In this regard, the main principles of applied bachelor's degree development are:

- Orientation on practical application of knowledge;
- Integration of theory and practice;
- Active participation of students;
- Focus on competence development;
- Individual approach to learning;
- Interdisciplinarity.

During the screening it was also possible to formulate the role of applied bachelor's degree in the education system of Kazakhstan. These are:

- preparation of specialists ready for continuous learning and self-improvement.
- formation of practical skills and competencies that can be immediately applied in practice.
- in-depth study of specific disciplines relevant to a particular industry or profession.

After determining the methodological framework, the model structure requires creation of conditions for the applied bachelor degree development in higher education system (regulatory and legal conditions - making the necessary additions and amendments to the normative legal acts; organizational conditions - development and implementation of applied bachelor degree programs; material, technical, financial conditions, etc.).

For effective creation of the a system of personnel training on applied bachelor's degree programs and its functioning, it should be piloted under real conditions. Afterwards when positive results and adjustments are obtained based on monitoring and evaluation, it is possible to extend it to the whole system of higher education. Therefore, procedural and evaluative components have found their place in the model.

The expected outcomes are defined in the result component - system of personnel training on applied bachelor's degree programs in the university environment with further integration into the academic bachelor's degree will be created. The expected result reflects the achievement of the model goal.

In general, the development of the applied bachelor degree as a short cycle of higher education requires an analysis of the labor market and society, conducting research to determine the current needs and to identify the areas in which specialists with applied skills are required.

The development of relevant courses and programs, i.e. the creation of content focused on applied skills and knowledge in accordance with market needs, is important. Obviously, the programs should be relevant and flexible to provide skills and knowledge according to the specific needs of the future workplace. When developing the program, the participation of representatives of the industry and business for which professional are being prepared, is inevitably. Employers should also act as experts in the development of training programs. With employers' support, the new modules will be amended in the implemented programs in order to respond flexibly to market demands.

Participation of external stakeholders in the training of applied bachelor's degree is a very important condition, as they formulate the requirements of the labor market, thus allowing to

update educational programs. According to their proposals, new modules or micro-qualifications can be included in the program, which will ensure the adaptability of graduates and employability.

Regular assessment of students' learning achievements, constant monitoring of knowledge and skills acquired is very important too. It allows to track the completion of program by students, and if necessary, to make changes in program structure and include new educational and practical blocks.

Such a model of integration of applied bachelor's degree into the system of higher education will allow to develop and constantly update applied bachelor's degree programs, which will effectively prepare students for the modern needs of the labor market.

Conclusions

Modern issues of training personnel with secondary qualifications are of great relevance for higher and postgraduate education in Kazakhstan. Kazakhstan, as a full member of the European Higher Education Area, should move towards the integration of applied bachelors degree in the higher education system and as a short cycle, and ensure its quality on the basis of the Standards and Guidelines for Quality Assurance in the EHEA (ESG). This not only the commitments undertaken by Kazakhstani, but also meeting the internal needs of education and national demands, as well as economy needs.

In the framework of our research we have developed a methodological concept of embedding the applied bachelor degree in the system of higher education using competence-based approach and learning outcomes.

We also proposed a model of applied bachelor degree development based on the approaches of the European Higher Education Area, which, in our opinion, will allow developing and constantly updating applied bachelor degree programs, effectively preparing students for the modern needs of the labor market.

The obtained results will help in restructuring the system of post-secondary education, thus contributing to the training of highly competitive specialists with applied skills for the country's economy.

Funding information

This research has been funded by the Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. BR18574103 To increase the competitiveness of universities in Kazakhstan through the reengineering of the national system of quality assurance of higher education).

Conflict of Interest Statement

The authors declare no potential conflicts of interest regarding the research, authorship, or publication of this article.

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РАЗРАБОТКА ТЕХНОЛОГИИ ИНТЕГРАЦИИ ПРИКЛАДНОГО БАКАЛАВРИАТА В СИСТЕМУ ВЫСШЕГО ОБРАЗОВАНИЯ И МОДЕЛИ ЕГО РАЗВИТИЯ

Аннотация. Современные вопросы подготовки кадров со средней квалификацией являются актуальными для высшего и послевузовского образования в Казахстане. В статье представлена технология интеграции прикладного бакалавриата в систему высшего образования и модель ее разработки. С использованием методов моделирования разработана соответствующая многоступенчатая технология интеграции прикладного бакалавриата в систему высшего образования как ее короткий цикл, а также структурная модель развития прикладного бакалавриата. Разработана методологическая концепция встраивания прикладного бакалавриата в систему высшего образования с использованием компетентностного подхода и результатов обучения.

Полученные результаты помогут в реструктуризации системы послесреднего образования, способствуя подготовке высококонкурентных специалистов с прикладными навыками для экономики страны.

Ключевые слова: прикладной бакалавриат, короткий цикл, интеграция в высшее образование, модель прикладного бакалавриата

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ҚОЛДАНБАЛЫ БАКАЛАВРИАТТЫҢ ЖОҒАРЫ БІЛІМ БЕРУ ЖҮЙЕСІНЕ КІРІГУ ТЕХНОЛОГИЯСЫН ЖӘНЕ ОНЫ МОДЕЛЬДЕРІН ӘЗІРЛЕУ

Андатпа. Орта білікті кадрларды даярлаудың қазіргі заманғы проблемалары Қазақстанның жоғары және жоғары оқу орнынан кейінгі білім беру ұйымдары үшін үлкен өзектілікке ие. Мақалада қолданбалы бакалавриатты жоғары білім беру жүйесіне интеграциялау технологиясы және оны дамыту моделі ұсынылған. Модельдеу әдістерін қолдана отырып, қолданбалы бакалавриатты жоғары білім беру жүйесіне оның қысқа циклі ретінде интеграциялаудың тиісті көп сатылы технологиясы, сондай-ақ қолданбалы бакалавриатты дамытудың құрылымдық моделі жасалды. Қолданбалы бакалавриатты құзыреттілік тәсіл мен оқыту нәтижелерін пайдалана отырып, жоғары білім беру жүйесіне енгізудің әдіснамалық тұжырымдамасы әзірленді. Алынған нәтижелер ел экономикасы үшін қолданбалы дағдылары бар жоғары бәсекеге қабілетті мамандарды даярлауға ықпал ете отырып, орта білімнен кейінгі білім беру жүйесін қайта құрылымдауға көмектеседі.

Түйін сөздер: қолданбалы бакалавриат, қысқа цикл, жоғары білімге интеграция, қолданбалы бакалавр дәрежесінің моделі.

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