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**IMPLEMENTATION
OF THE DUAL
FORM OF TRAINING
OF HIGHER
EDUCATION
GRADUATORS ON
THE BASIS OF THE
ALL-UKRAINIAN
SCIENTIFIC AND
EDUCATIONAL
CONSORTIUM**

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The current state of the higher education system in Ukraine is studied on the example of higher education institutions (HEIs). It is established that the effectiveness of the educational process is manifested in the level of training of a highly qualified specialist, who is competitive in the labor market. The dynamics of the number of applicants for higher education in Ukraine and the unemployment rate is analyzed; the relationship between these indicators is established.

The main reasons for the mismatch of the level of educational services of educational institutions to the needs of employers are determined, which are due to inadequate funding of the education system, and, as a consequence, the low level of knowledge of graduates, which does not meet the real needs of today. It is established that the main reason for underfunding of the education system is the dominance of local budgets in expenditures for the needs of educators and lack of funds for implementation of educational programs, as well as non-fulfillment in full of state obligations in this area as a whole.

The essence and features of the dual form of education are revealed, the substantive difference between traditional and dual forms of education is reflected, which consists in the fact that they have completely different planes of common interests. The relevance of the latter is substantiated taking into account current trends in the labor market and the adaptation of the domestic education system to the requirements of the European Union.

The expediency of introducing dual education in the Free Economic Zone as a form of cooperation between educational and scientific institutions, production and business, and also an integral part of the formation of a highly qualified specialist, is substantiated. The main mutual benefits of the participants of the dual form of education and the forms of their participation in the educational process are listed. The effectiveness of the dual form of higher education has been proved on the example of Vinnytsia National Agrarian University, which is a co-founder of the All-Ukrainian Scientific-Educational Consortium. The importance of the principle of student-centeredness as a key factor in the effectiveness of the education system as a whole is substantiated.

Key words: higher education, Vinnytsia National Agrarian University, applicant for higher education, dual education, consortium, educational institution, educational process, employer.

Tabl.: 1. Fig.: 5. Ref.: 11.

РЕАЛІЗАЦІЯ ДУАЛЬНОЇ ФОРМИ ПІДГОТОВКИ ЗДОБУВАЧІВ ВИЩОЇ ОСВІТИ НА БАЗІ ННВК «ВСЕУКРАЇНСЬКИЙ НАУКОВО-НАВЧАЛЬНИЙ КОНСОРЦІУМ»

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Досліджено сучасний стан системи вищої освіти в Україні на прикладі закладів вищої освіти (ЗВО). Встановлено, що ефективність освітнього процесу проявляється в рівні підготовки висококваліфікованого фахівця, конкурентоспроможного на ринку праці. Проаналізовано динаміку чисельності здобувачів вищої освіти в Україні та рівень безробіття, встановлено взаємозв'язок між даними показниками.

Визначено основні причини невідповідності рівня освітніх послуг навчальних закладів потребам роботодавців, що зумовлено неналежним обсягом фінансування системи освіти, і, як наслідок, низьким рівнем знань випускників, який не відповідає реальним потребам сьогодення. Встановлено, що основною причиною недофінансування системи освіти є домінування місцевих бюджетів у видатках на потреби освітян та брак коштів у останніх

на реалізацію освітніх програм, а також, невиконання в повному обсязі державних зобов'язань у зазначеній сфері загалом.

Розкрито сутність та особливості дуальної форми освіти, відображено предметну різницю між традиційною та дуальною формами освіти, яка полягає в тому, що у них зовсім різні площини спільних інтересів. Обґрунтовано актуальність останньої, зважаючи на сучасні тенденції на ринку праці та адаптацію вітчизняної системи освіти до вимог Європейського Союзу.

Обґрунтовано доцільність впровадження дуальної освіти у ЗВО як форми кооперації навчальних та наукових установ, виробництва й бізнесу, а також невід'ємної складової формування висококваліфікованого фахівця. Перераховано основні взаємовигоди учасників дуальної форми освіти та форми їхньої участі в освітньому процесі. На прикладі Вінницького національного аграрного університету, який є співзасновником Навчально-науково-виробничого комплексу «Всеукраїнський науково-навчальний консорціум», доведено дієвість дуальної форми вищої освіти. Обґрунтовано вагомість принципу студентоцентризму як ключового фактору дієвості системи освіти загалом.

Ключові слова: вища освіта, Вінницький національний аграрний університет, здобувач вищої освіти, дуальна освіта, консорціум, навчальний заклад, освітній процес, роботодавець.

Табл.: 1. Рис.: 5. Літ.: 11.

РЕАЛИЗАЦИЯ ДУАЛЬНОЙ ФОРМЫ ПОДГОТОВКИ СОИСКАТЕЛЕЙ ВЫСШЕГО ОБРАЗОВАНИЯ НА БАЗЕ УНПК «ВСЕУКРАИНСКИЙ НАУЧНО-УЧЕБНЫЙ КОНСОРЦИУМ»

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Исследовано современное состояние системы высшего образования в Украине на примере заведений высшего образования (ЗВО). Установлено, что эффективность образовательного процесса проявляется в уровне подготовки высококвалифицированного специалиста, конкурентоспособного на рынке труда. Проанализирована динамика численности соискателей высшего образования в Украине и уровень безработицы, установлена взаимосвязь между данными показателями. Определены основные причины несоответствия уровня образовательных услуг учебных заведений потребностям работодателей, что обусловлено ненадлежащим объемом финансирования системы образования, и, как следствие, низким уровнем знаний выпускников, которые не соответствует реальным потребностям. Установлено, что основной причиной недофинансирования системы образования является доминирование местных бюджетов в расходах на нужды педагогов и недостаток денежных средств у последних на реализацию образовательных программ, а также невыполнение в полном объеме государственных обязательств в данной сфере в целом.

Раскрыта сущность и особенности дуальной формы образования, показано предметную разницу между традиционной и дуальной формами образования, которая заключается в совершенно разных плоскостях общих интересов вышеуказанных форм. Обоснована актуальность последней, учитывая современные тенденции на рынке труда и адаптацию отечественной системы образования к требованиям Европейского Союза.

Обоснована целесообразность использования дуального образования в ЗВО как формы кооперации учебных и научных учреждений, производства и бизнеса, а также неотъемлемой составляющей формирования высококвалифицированного специалиста. Перечислены основные взаимовыгоды участников дуальной формы образования и способы их участия в образовательном процессе. На примере Винницкого национального аграрного университета, который является соучредителем Учебно-научно-производственного комплекса «Всеукраинский научно-учебный консорциум», доказано действенность дуальной формы высшего образования. Обоснованно значимость принципа студентоцентризма, как ключевого фактора действенности системы образования в целом.

Ключевые слова: высшее образование, Винницкий национальный аграрный университет, соискатель высшего образования, дуальное образование, консорциум, учебное заведение, образовательный процесс, работодатель.

Табл.: 1. Рис.: 5. Лит.: 11.

Formulation of the problem. A characteristic feature of the personnel of the enterprise as an integral part of the resource potential is its ability to self-development and self-improvement. Today, it is human resources that make any country competitive on the world stage, or it remains an outsider. In order to properly represent our country among the world community of scientific and technological achievements, Ukrainian specialists in various fields need to have the appropriate knowledge and competencies that enable them to create competitive products on the world market and provide high quality services in various fields. The acquisition of the necessary level of knowledge by future specialists and the mastery of relevant competencies are ensured by higher education institutions. However, constant changes and instability of Ukrainian economy require flexibility and rapid adaptation of the educational process to today's requirements.

Analysis of recent research and publications. Studies of the quality and level of educational services in the system of higher education were carried out by such domestic scientists as Kaletnik G.M. [10], Mazur V.A. [11], Adamchuk V.V. [10], Bulgakov V.M. [10] and many others. However, the opinions of practitioners and decisions of politicians today differ significantly, as a result – domestic educational standards do not meet world standards. The reason for this is the discrepancy between the content of competencies required by employers and provided by higher education institutions (HEIs). Therefore, borrowing and adaptation of world experience in the field of education, in particular the use of dual forms of education in Ukrainian higher education institutions, require further research and are relevant.

Formulation of the goals of the article. The purpose of the study is to analyze the current state of the higher education system in Ukraine and identify key issues that hinder its development; to reveal the essence and significance of the dual form of education in the professional training of highly qualified specialists; to substantiate the expediency of conducting a dual form of education in the Free Economic Zone as a cooperation of educational institutions, research institutions, production and business.

Presentation of the main research material. According to the State Statistics Service, Ukraine has a high unemployment rate this year. In 2020, the number of

unemployed people aged 15-70 was 1674.2 thousand people (Table 1). During the study period (2014-2020), there is a positive trend – the number of unemployed decreased by 173.4 thousand people compared to 2014 [1], which is almost 4% of its total number, which in 2019, according to the Cabinet of Ministers of Ukraine, amounted to 37 million 289 thousand people [13]. However, this trend is difficult to consider «positive», as the total population has also decreased in dynamics, and the number of Ukrainians who are migrant workers has increased in dynamics: since the beginning of 2010, about 4 million Ukrainians left Ukraine and did not return, which is almost 10 % of the population [12].

Table 1

Unemployment of the population of Ukraine due to the reasons of unemployment, 2014-2020

| Years | Population aged 15-70 years, thousand people | Causes of unemployment, % | | | | | |
|-----------------|--|--------------------------------|---|--|-------------------------------|-------------------------|---------------|
| | | dismissed for economic reasons | dismissed at their own request, by agreement of the parties | dismissed in connection with the expiration of the contract or employment contract | not employed after graduation | seasonal nature of work | other reasons |
| 2014 | 1847.6 | 22.3 | 31.8 | 7.8 | 16.7 | 9.3 | 12.1 |
| 2015 | 1654.7 | 27.8 | 28.9 | 7.5 | 16.4 | 9.9 | 9.5 |
| 2016 | 1678.2 | 22.4 | 33.0 | 9.4 | 15.6 | 9.7 | 9.9 |
| 2017 | 1698.0 | 23.2 | 34.5 | 8.2 | 12.2 | 10.1 | 11.8 |
| 2018 | 1578.6 | 20.7 | 38.0 | 9.5 | 9.8 | 9.4 | 12.6 |
| 2019 | 1487.7 | 21.5 | 39.6 | 8.9 | 9.4 | 9.6 | 11.0 |
| 2020 | 1674.2 | 22.9 | 34.1 | 9.7 | 9.3 | 10.2 | 2.9 |
| 2020 to 2010, ± | -173.4 | 0.6 p.p. | 2.3 p.p. | 1.9 p.p. | -7.4 p.p. | 0.9 p.p. | -9.2 p.p. |

Source: formed according to [1]

The percentage of unemployed graduates of educational institutions in 2020 was 9.3% of the total number of unemployed [1]. The reason for non-employment of graduates of educational institutions, the share of which is quite significant, is the economic crisis in our country, as well as dissatisfaction of employers with the «quality» of graduates. According to a study by the Ministry of Education and Science of Ukraine, 4 out of 10 firms in key sectors of the Ukrainian economy indicate a significant gap between the competencies possessed by employees and the firms needed to achieve the goals [5]. This accordingly affects the efficiency of the business, the quality of services, the loss of customers or markets, increase the cost of recruitment, as it takes time to retrain a specialist in order to form a highly qualified specialist [7].

Along with the demographic crisis, inflated requirements for admission to free economic education, the lack of demand from employers for free economic education graduates and, as a result, the impossibility of employment in the specialty, reduced the prestige of higher education. During 2014-2020, there is a tendency to reducing of the number of applicants for higher education by almost 14.7% (Fig. 1) [14].

Successful implementation of any reform, including in the education system,

first of all requires the presence of two main components: the one who will make the changes, and the actual funds needed to do so. If there is a certain controversy in the society about the first component regarding the level of qualification of educational reformers, then about the second component – funds, everyone has the same opinion – they are catastrophically lacking. As a result, changes in education are too slow and not always in the right direction.

Ukrainian scientists in their research emphasize the lack of appropriate conditions and amounts of funding for practical training of future professionals, which was previously carried out through numerous training and internships, which is now minimized [10, p. 8]. In particular, Mazur V.A. notes that an integral part of the personnel policy of any enterprise and its successful operation in general is the training policy [11, p. 9].

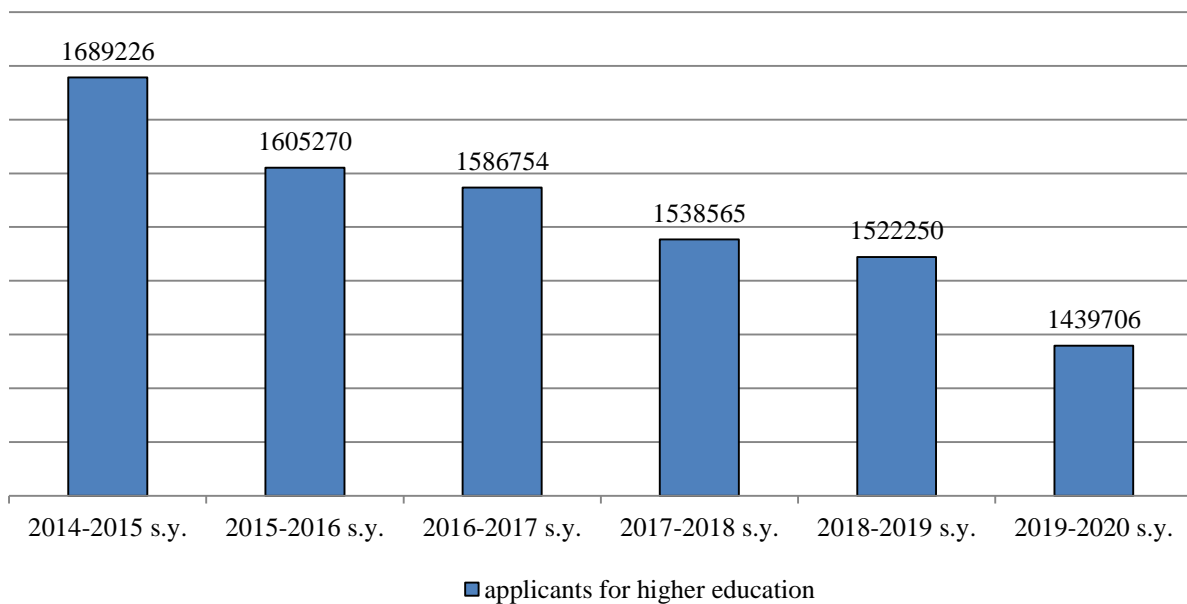


Fig. 1. Dynamics of the number of applicants for higher education in Ukraine, people

Source: formed according to [14]

It should be noted that the consolidated budget expenditures on higher education over the past 5 years have increased by 18.1 billion UAH, i.e. by 71.24%, but the wear of equipment of higher education institutions is 60-80% [3]. Under these conditions, higher education institutions are unable to provide the educational process at the appropriate level.

Analyzing the expenditures of the consolidated budget of Ukraine in terms of levels of education, it should be noted that during 2014-2020 the largest share in expenditures on average had the costs of general secondary (45.95%), higher (24.14%) and preschool education (15.37%). Despite the fact that expenditures on higher education are quite high, in dynamics they decreased by 6.3%. In general, only expenditures on general secondary education increased, at all other levels of education there is a reduction in expenditures (Fig. 2).

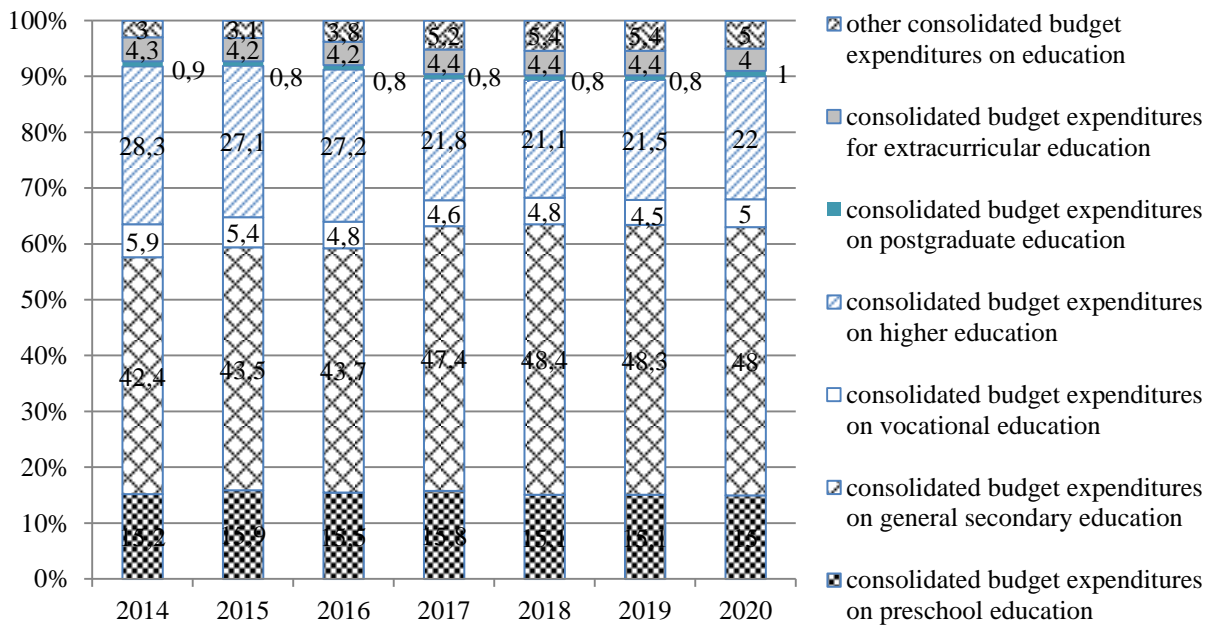


Fig. 2. Expenditures of the consolidated budget of Ukraine in terms of levels of education in 2014-2020, % of expenditures of the consolidated budget of Ukraine for education

Source: formed according to data [14, p. 155]

According to the Law of Ukraine «On Education», the state must ensure the allocation for its development in the amount of not less than 7% of gross domestic product from the state, local budgets and other sources of funding not prohibited by law [9]. However, this norm is not met (Table 2), so it is necessary to radically change the basic approaches to the system of financing the education system in order to prepare high-quality professionals who will be competitive in the labor market.

In our opinion, dual education is the alternative that will help to solve a number of existing problems in the education system of Ukraine.

According to the Law of Ukraine «On Higher Education» there are the following forms of higher education [8]:

- full-time (day, evening) form of higher education – is a way of organizing the process of higher education, which involves training and practical training;
- correspondence form of higher education is a way of organizing the training of higher education students by combining training sessions and control activities during short sessions and self-mastery of the educational program in the period between them;
- distance form of education – is an individualized process of education, which occurs mainly through the indirect interaction of distant participants in the educational process in a specialized environment that operates on the basis of modern psychological, pedagogical and information and communication technologies;
- network form of higher education – is a way of organizing the training of higher education, through which the mastery of the educational program is with the participation of higher education institutions and other subjects of educational activities that interact with each other on a contractual basis;

- dual form of higher education – is a way of obtaining education by full-time students, which involves on-the-job training at enterprises, institutions and organizations to obtain a certain qualification.

Table 2

**Dynamics of consolidated budget expenditures on education in Ukraine,
2014-2020, UAH million**

| Indicator | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2020 to 2014, ± |
|---|---------|----------|----------|----------|----------|----------|----------|-----------------|
| GDP | 1566728 | 1988544 | 2383182 | 2982900 | 3332300 | 3946900 | 4194102 | 2380172 |
| Expenditures on education – consolidated budget | 98703.9 | 113347.0 | 128691.8 | 178974.0 | 209934.9 | 228920.2 | 252283.1 | 130216.3 |
| Expenditures of the consolidated budget of Ukraine for education, % of GDP | 6.3 | 5.7 | 5.4 | 6.0 | 6.3 | 5.8 | 6.0 | -0.2 |
| Expenditures of the consolidated budget of Ukraine for education, % of expenditures of the consolidated budget in Ukraine | 19.1 | 16.8 | 15.5 | 16.8 | 16.8 | 17.4 | 15.8 | -3.3 |

Source: formed according to data [2; 3; 4]

The advantage of dual education over the other forms of higher education is that it is carried out on the basis of an agreement between the institution of higher education, the employer and the student, which provides [8]:

- the order of employment of the applicant of higher education and payment of his work;
- the amount and expected learning outcomes of the higher education applicant in the workplace;
- obligations of the higher education institution and the employer in terms of the implementation of the applicant's higher education curriculum in the workplace;
- the procedure for evaluating learning outcomes obtained in the workplace.

Thus, the concept of the dual form of education provides [5]:

- modernization of educational programs;
- improving the quality of training;
- convergence of education with the requirements of the labor market;
- strengthening the role and influence of employers on education;
- increasing of motivation to study among students;
- growth of youth employment;
- reduction of the adaptation period of graduates at work;
- increasing of the competitiveness of graduates.

The substantive difference between traditional and dual forms of education is that they have completely different common interests. As we see from Fig. 3, in the traditional form of education, the range of common interests is only tangible, i.e. the interests coincide just partially. In the dual form of education, the range of common interests is inherent to all participants.

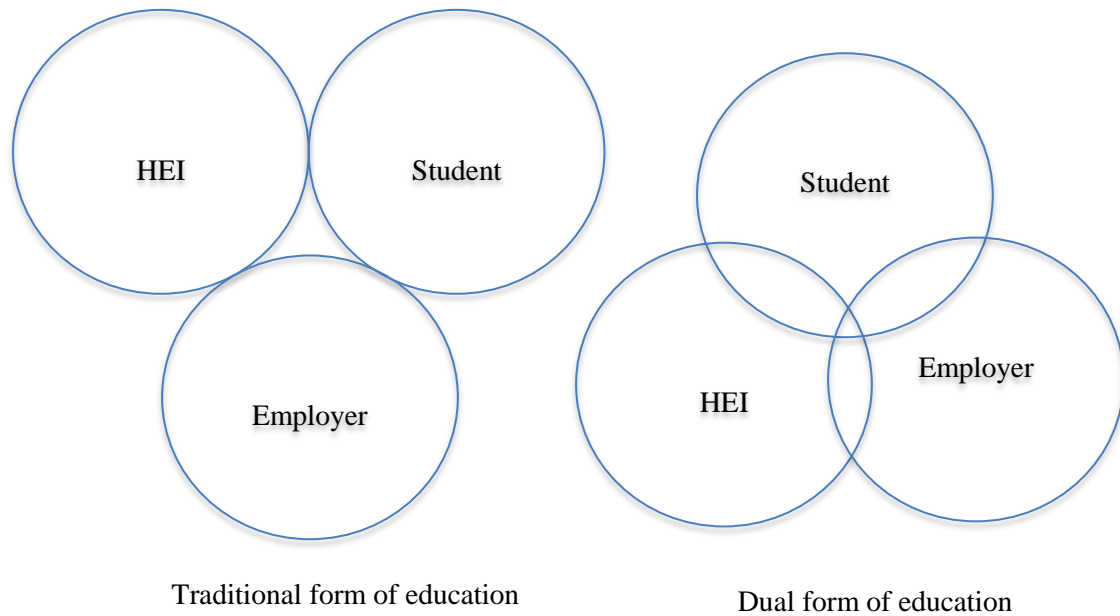


Fig. 3. Interests of traditional and dual forms of education

Source: formed by the author on the basis of his own research

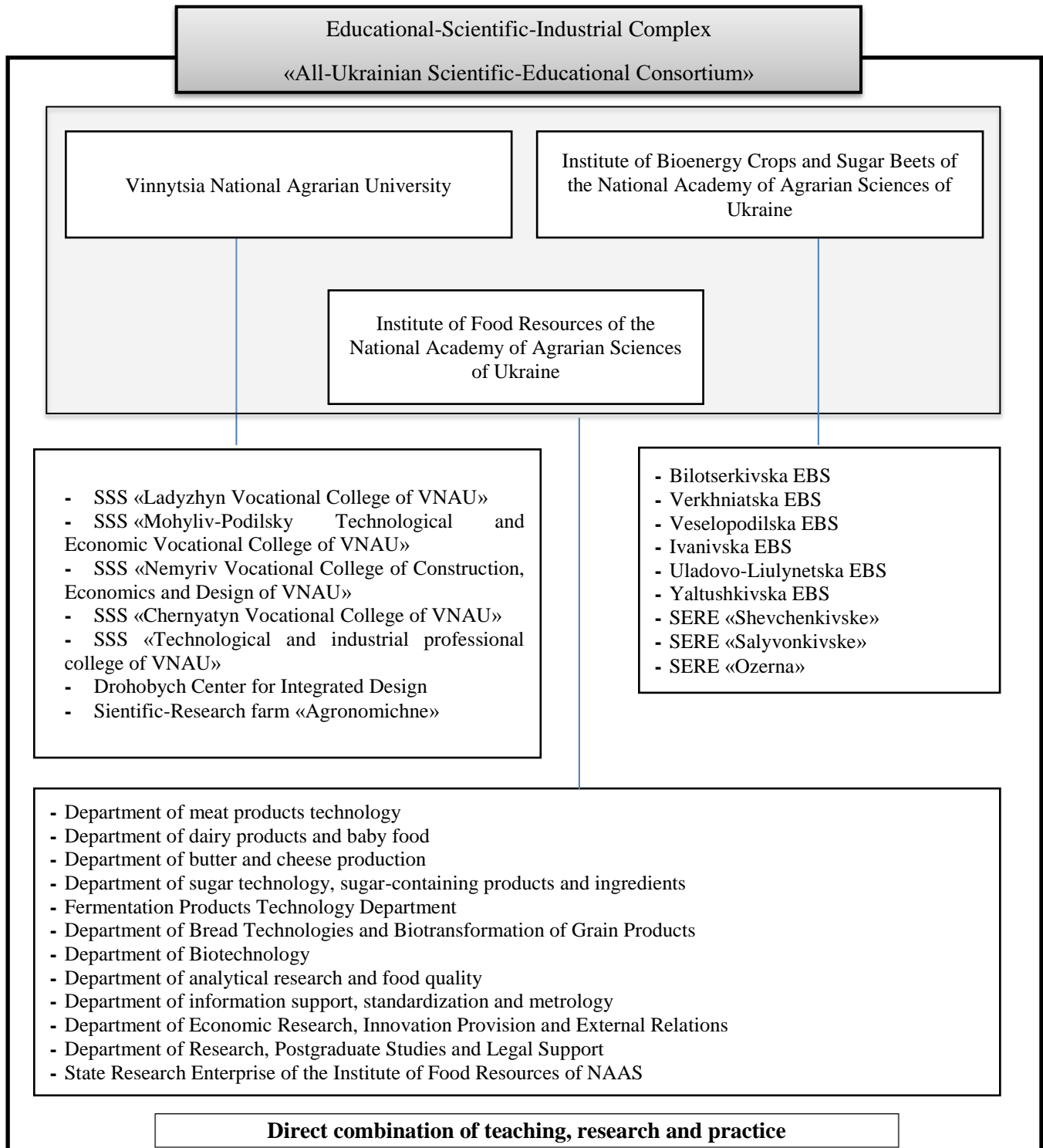
Unlike the traditional form of education, the dual form of education is based on the principle of student-centeredness. And this is true, because if a student receives the necessary knowledge in educational institutions at the appropriate level, after graduation he will be competitive in the labor market, and therefore employed. That is, in the dual form of education, all its participants receive mutual benefits, which ultimately give a synergistic effect:

- HEI – integration of education, science and business; appropriate financing and improvement of material and technical base, savings; new technologies and advanced training of teachers; high-quality and motivated contingent of students, guarantees of their employment; improving the image of the university among applicants and employers;

- employer – investment for the future, improving the image as an employer; employment of the best graduates of higher education institutions; during the internship students get acquainted in detail with the features of the base of practice, brings new ideas and approaches to solve existing problems;

- student – gaining practical skills that cannot provide an educational institution by consolidating theoretical knowledge in practice; work and study in small groups and mentoring throughout the training period; employment guarantees; social experience and communication.

Vinnitsia National Agrarian University (VNAU) makes maximum use of the above elements of dual education in the educational process, due to the fact that VNAU is the founder of the Educational-Scientific-Industrial Complex «All-Ukrainian Scientific-Educational Consortium», which includes the Institute of Bioenergy Crops and Sugar Beets and the Institute of food resources of the National Academy of Agrarian Sciences of Ukraine with structural units (Fig. 4).



Економіка, фінанси, менеджмент: актуальні питання науки і практики, 2021, № 3

Fig. 4. The structure of the Educational-Scientific-Industrial Complex «All-Ukrainian Scientific-Educational Consortium»

Source: summarized by the authors according to [14]

The effective functioning of the Consortium and the implementation of the basics of dual education is ensured by the teaching staff, which consists of 85 doctors of sciences and 405 candidates of sciences and provides the relevant educational process in 48 specialties.

The main purposes of the Consortium are [14]:

- formation of a modern effective system of training, retraining and advanced

training of the specialists with higher education for agriculture on the basis of integration and joint activities of scientific, educational, innovative and technological potential of the Consortium founding teams by generalizing and disseminating advanced scientific developments;

- creation and implementation of new learning technologies taking into account national and world experience.

The combination of the educational process with production, which is systematically practiced at VNAU with the participation of the Educational-Scientific-Industrial Complex «All-Ukrainian Scientific-Educational Consortium», promotes better assimilation of educational materials by students, as they directly participate in various production processes. Direct dialogue with specialists in production, illustration of various production processes and situations is invaluable for both students and the educational process in general. It is also worth noting that the use of dual education contributes to significant savings of the university, by reducing utility costs, as the educational process (for example, internships) takes place directly in the workplace and does not involve students living in dormitories. As on July 1, 2021 savings of utilities per one student per month, during the internship, is 241.59 UAH.

The dual form of education involves the active participation of employers directly in the educational process, which may be of different nature, but it must contain the following components:

- participation in curriculum development;
- approval of curriculum;
- organization, participation and holding of scientific conferences, fairs, round tables;
- conducting practical and lecture classes, including on the job;
- management of term papers, internships, consulting on diploma design;
- participation in the work of state examination commissions, etc.

In general, the system of relationships in the dual system of education can be depicted as follows (Fig. 5).

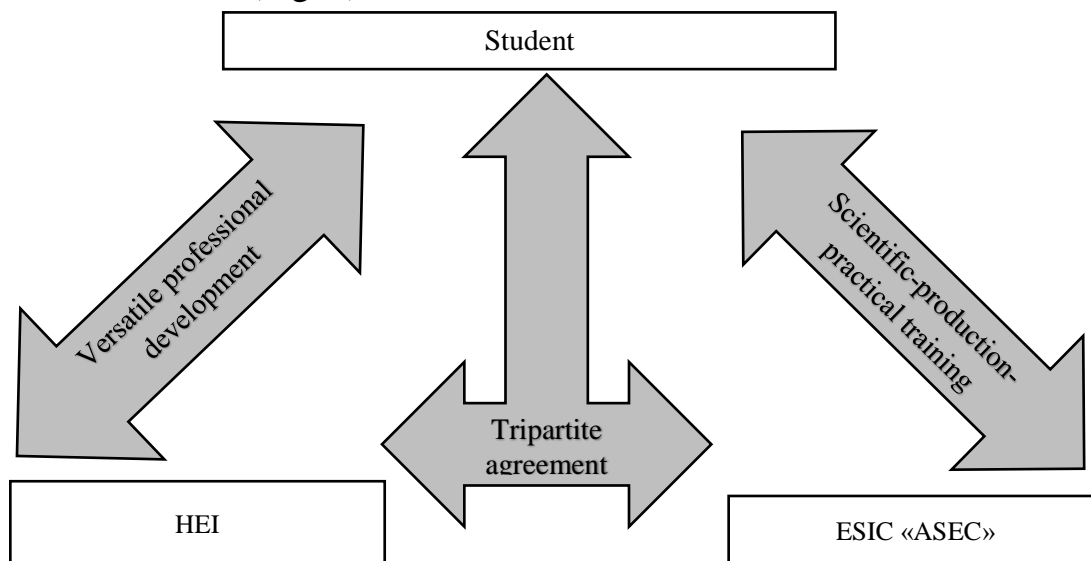


Fig. 5. Relationships between participants in the dual form of education
Source: summarized by the authors according to [5, 8]

Conclusions. Summarizing the above, we can conclude that dual education is an integral part of the formation of highly qualified professionals and should be considered as a key factor in providing quality educational services. The existing «triangle» of the education system – MES, HEI and a student was ineffective, because it does not have the necessary component – the employer, for whom a qualified specialist with a certain level of knowledge and the appropriate set of competencies is formed. Thus, it is the involvement of the employer in the educational process that will make it more perfect in Ukrainian free economic zones and bring it to a qualitatively new level, which will be based on dual education.

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