

PSYCHOLOGICAL ASPECTS OF THE LANDSCAPE OF MODERN ORGANIZATIONAL AND PEDAGOGICAL CONDITIONS OF TRAINING OF SPECIALISTS THROUGH THE INTEGRATION OF EDUCATION, SCIENCE AND PRODUCTION IN UKRAINE

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Abstract: The relevance of the scientific topic is based on solving the problems of the methodology of introduction of modern organizational and pedagogical conditions of training of specialists through the integration of education, science, and production, which involves the implementation of the educational process on the basis of mutual assistance. In the process of experimental research at the ascertaining stage among the future specialists, problems were revealed, which are in the unwillingness of students to study in the dual form of education. Methodical tools were developed to increase the readiness of future professionals for professional activity through the integration of education, science, and production, namely: solution and discussion of different problematic situations, use of business games of different topics, creation of presentations for work, use of innovative techniques (methodology of formation of motivation to implementation of professional activity; methodology of formation of professional and pedagogical knowledge and skills; methodology of formation of professionally important qualities), aimed at shaping of all structural components of the implementation of dual education, project technologies, training technologies, coaching-technologies, case technologies, information and communication technologies. After conducting the experimental study, promising directions of increasing the level of readiness of future specialists for professional activity through the integration of education, science, and production were formed. The practical value of the work consists in the development of the methodology for organization and implementation of the process of integration of education, science, and production in higher education institutions of Ukraine.

Keywords: organizational and pedagogical conditions; training of specialists; integration of education, science and production; dual education; the readiness of future specialists; readiness components.

1 Introduction

The intensification of structural changes observed in numerous institutions of higher education of Ukraine increases the demand for new level experts capable of qualitative realization of production tasks. Changing trends in the labor market and strengthening the requirements of stakeholders to specialists require the intensification of transformation processes and improvement of the educational environment [13]. To date, the most effective form of educational process is dual education, through which an increase is observed in the practical side of the educational process, the quality of educational services, integration of production, the labor market, and institutions of higher education [1; 6; 20].

Science, which provides the generation of new ideas, introduction of technical and technological developments in education, acquires the driving force of the state, if it is in continuous interaction with the production process, is transformed into a result.

Reforming Ukrainian higher education, in particular, pedagogical education, currently is carried out by updating state standards, improving the content of education through the modernization of existing educational programs, introduction of flexible forms of vocational training organization in order to overcome the gap between theory and practice, education and production [10, 11]. Such a modern form of education is namely dual education, which is intended to bring professional education to the requirements of the labor market, to create opportunities for graduates to obtain key and professional competences [8, 14; 16].

Transformation processes in society have led to increased psychological aspect of studying the problem of integration of education, science, and production. The definition of psychological aspects of the landscape of modern organizational and pedagogical conditions of training of specialists is based on the results of diagnosing the level of the future specialist's development, which includes evaluation of his motivation, the level of development of emotional intelligence, cognitive abilities, the level of formation of skills, ability to self-learning and reflection. Organizational and pedagogical conditions of training of specialists are considered in the system of interaction "man-profession". Determination of the formation of readiness of future specialists for the implementation of professional activity through the integration of education, science, and production in this system is based on the study of mutual formation of components of readiness [4; 24].

Adherence to the balance between the psychological component of the specialist's readiness to integrate education and science into production and the theoretical and practical component is achieved through the rational organization of the educational process, when the theory is studied in an educational organization, and practical skills are formed directly in production.

Therefore, the problem of studying the psychological aspects of the landscape of organizational and pedagogical conditions of specialists training with the use of elements of a dual system of learning, capable of working effectively and satisfying production requests, is urgent.

The dual education system has gained worldwide recognition and is the most common form of training in demanded specialists in the labor market in Ukraine, which combines theoretical training in a higher education institution with industrial training at the enterprise. That is why the education system requires serious reform based on a comprehensive approach and integration of education, science, and production.

2 Materials and Methods

Today, many works of both Ukrainian domestic and foreign scientists are devoted to the problems of integration of education, science, and production: N. V. Abashkina, S. M. Amelina, U. Mill, in the works of which the essence, formation, and problems of dual learning in Germany are revealed; O. Begma, L. Green, Yu. Panfilov, S. Karlyuk, L. Yu. Krymchak, N. V. Kulalaeva, K. V. Yakovenko, and others propose to improve the interaction of education, science, and production by creation of educational and scientific complexes of associative type with the involvement of enterprises and institutions of Ukraine [22; 25].

The Ukrainian education system is characterized by a borrowing of experience in Germany and other countries that introduce dual-form training.

There are already some legislative bases in this direction that require development and real implementation. According to the Law of Ukraine "On Education", "Dual Education is a way of obtaining education, which involves the combination of training of persons in educational institutions (or in other subjects of educational activity) with training at workplaces at enterprises, institutions and organizations to acquire a certain qualification based on a trilateral contract" [27].

In the professional training of future specialists, elements of dual form of education were introduced by order of the Ministry of Education and Science of Ukraine of June 23, 2017 "On the introduction of elements of dual form of training in the professional training of qualified workers". The order defines the list of institutions of vocational (or vocational-technical)

education for implementation during 2017-2020 of the elements of dual form of training in certain working professions, as well as approves the road map of the introduction of elements of dual form of training in the professional training of qualified workers [18].

The concept of training of specialists in the dual form of education was approved by the order of the Cabinet of Ministers of September 19, 2018 No. 660-p, which expands the boundaries of dual form of education in the preparation of applicants for higher, professional higher, and professional (vocational-technical) education [17].

For the implementation of this concept of the CMU, a plan of measures for the implementation of the concept of training of specialists in the dual form of education was approved, obliging the Ministry of Education and Science, the Ministry of Social Policy, the Ministry of Economic Development, the Joint representative body of the party to the employers at the national level (with consent), a Joint representative body of representative all-Ukrainian associations of trade unions at the national level (with the consent) to develop a Provision on the dual form of obtaining vocational (vocational-technical) education, Provisions on the dual form of obtaining higher education (including professional one), standard contracts on dual form of obtaining vocational (vocational-technical) education, professional higher education, higher education.

At the same time, the Plan of measures provides for amendments to the normative legal acts in the field of education and labor with the aim to take into account the peculiarities of the introduction of a dual form of education [16].

The Ministry of Education and Science of Ukraine, within the framework of the plan of measures for the implementation of the Concept of Training of Specialists by Dual Form of Education, proposed a draft of Provision on the dual form of higher and professional higher education for public discussion.

The dual form of education in institutions of higher and professional higher education, in accordance with the Provision, implies education by combining training of persons in educational institutions with training at workplaces at enterprises, institutions and organizations for acquisition of certain qualifications on the basis of the contract. The responsibility for the implementation of the educational program rests with the educational institution in full. The provision defines the purpose of implementation and the main tasks of the dual form of education, defines dual learning, appropriate rights and responsibilities.

The Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on Improving Educational Activities in Higher Education" introduced a dual form of obtaining education in the higher education institutions, defining it as a way of obtaining education by full-time applicants, which provides training at the workplace at enterprises, institutions and organizations for acquisition of a certain qualification with a volume of 25% to 60% of the total volume of the educational program on the basis of the contract [21].

The real steps towards the obtaining education within dual-form was the introduction of a pilot project in the institutions of higher (including professional) education in the training of specialists by dual form of education, which approved the list of institutions of vocational higher education and higher education and specialties for the implementation during 2019-2023 of the pilot project [20].

Successful implementation of dual education requires the synergy of efforts of educational institutions, employers, and students. The primary task for educational institutions is to find partner employers. At the same time, it is equally important not only to establish a partnership with employers, but also to determine the criteria that the employer must meet for the organization of training in dual form and to develop the mechanisms of economic interest in these processes. The

interaction of business and government should be built on the principles of public-private partnership. The current legislation governing the relations between the state (state partner) and legal entities (private partners) pays enough attention to such cooperation in the field of education.

However, the Ministry of Education and Science of Ukraine combines efforts with enterprises and organizations in the direction of systematic, constructive, and mutually beneficial cooperation to ensure high quality of professional training, attracting additional resources for the development of vocational education and its orientation on modern technical and technological conditions.

The main directions of such cooperation are as follows:

- Preparation of proposals for reforming the higher education system and creation of professional and educational standards;
- Providing advisory assistance on issues of common interest;
- Participation of future specialists in joint events: competitions, exhibitions, conferences, round tables, etc.;
- Development of mechanisms for providing graduates of professional (vocational-technical) educational institutions and higher education institutions with workplaces at enterprises;
- Development of proposals for compatible provision of professional qualifications to graduates by employers and educational institutions;
- Consolidation of enterprises on institutions of vocational (vocational-technical) education and higher education institutions for providing chefs;
- Ensuring practical training of future specialists and internships of teachers of vocational training and masters of industrial training at basic enterprises;
- Introduction of payment by enterprises and sectoral organizations of registered scholarships to the best students;
- Providing enterprises and organizations with assistance in the maintenance and development of the material and technical base of educational institutions;
- Introduction of material and moral stimulation of teachers of educational institutions by enterprises and organizations;
- Mutual dissemination of information on issues related to the development of vocational education and training of competitive personnel for the labor market [2; 19; 26].

On the basis of the above data, the methodology of forming the readiness of future specialists for the implementation of professional activity through the integration of education, science, and production involved the use of effective methods that would contribute to the improvement of dual education on the basis of the introduction of modern organizational and pedagogical conditions of training of future specialists. Such methods included the use of innovative technologies in the course of students' technological internship at the enterprise, involvement of future specialists in research work with further implementation, expert evaluation, questionnaires, testing, conversation, observation, surveys at the stage of ascertaining experiment to determine the initial level of readiness of future specialists for professional activity through integration of education, science, and production [7, 9; 21].

The basics of the methodological approach of experimental research are the analysis of literary sources for comparing different views on the problem under study, systematization and generalization of theoretical data, comparative analysis, as well as empirical methods (questionnaire, testing, conversation, observation, surveys, generalization of pedagogical experience, creation and solution of problematic situations). Diagnostic (questionnaire analysis) method was also applied, as well as pedagogical observation and pedagogical experiment (ascertaining, molding, control).

The experimental study was conducted at the Hlukhiv National Pedagogical University named after Olexander Dovzhenko. In

order to ensure the representativeness and accuracy of the sample, the peculiarities of the formation of control and experimental groups, age and gender are determined. The formation of the control and research massif was carried out by pairwise selection. The condition was taken into account that at the end of the selection, the number of the experimental group meets the requirements of representativeness. The sample consisted of 120 students. The control group was 58 respondents, while the experimental group included 62 respondents, in particular, 68 women and 52 men.

At the ascertaining stage, research and analysis of the literary base on the problem of research and comparison of scientists' views on the problem under study, systematization, classification and generalization of theoretical data, comparative analysis; modeling and generalization of the methodology of training of future specialists in the conditions of dual education, components of readiness and organization and pedagogical conditions of readiness of future specialists for the implementation of professional activity through the integration of education, science and production was carried out. There was checking the levels of readiness of future specialists for dual form of study by components: motivational-emotional, cognitive, activity, and reflexive.

Modern psychological aspects of the problem and conditions of readiness of future specialists for the implementation of professional activity through the integration of education, science and production, which can be effectively and qualitatively resolved through the practical use of the author's methodology; a survey of undergraduates who went to practice for production was conducted, the necessary conclusions were made.

At the formative stage of the experiment, an analytical study of the effectiveness of certain components and organizational and pedagogical conditions of readiness of future specialists for the implementation of professional activity through the integration of education, science, and production was conducted: enriching the content of professional activity, professional responsibility of the undergraduate in situations as close as possible to the realities of production, the use of contextual teaching methods in educational and professional activity, professional responsibility of the undergraduate in situations as close as possible to the realities of production, mastering pedagogical principles of development of emotional intelligence in future specialists; Outlines were conducted, diagnostic conversations, questionnaires, testing were offered to participants; the data were processed using the methods of mathematical statistics: processing the final indicators of the level of readiness of future specialists for professional activity through the integration of education, science, and production.

3 Results and Discussion

Dual training is believed to be one of the means of effective economic development of Ukraine, because it provides citizens with employment and the economy - with necessary experts.

On the basis of analysis of scientific works [15; 21; 24; 26], it was determined that the "dual form of education" is a way of obtaining education, which involves the combination of education of persons in educational institutions with training at workplaces at enterprises, institutions and organizations for acquisition of a certain qualification, usually on the basis of the implementation of Dual Education Agreement (contract).

Every profession that requires special practical training, is provided with fixed-term training programs and requirements for the result: skills and knowledge. An important advantage of dual learning is that the enterprise has the opportunity to select prospective specialists, and this also enhances the motivation of applicants.

German vocational training in the form of dual training is organized with the prospect of the future, taking into account the development of technologies that ensure work automation. The

emphasis is made on the training of qualified, responsible, independent, initiative employees who understand the purpose and methods of the company and are able to show determination in the event of problems or if possible to improve the production process [5; 9; 19; 27].

Currently, dual learning is gaining popularity around the world (Austria, Hungary, China) and covers professions in various fields of activity. Collaboration with Germany on the introduction of dual learning is carried out in more than 100 countries.

The main problem of higher education of Ukraine is the need to urgently resolve the issues of psychological aspects of formation of future specialists' readiness for the implementation of professional activity through the integration of education, science, and production, justification and implementation of organizational and pedagogical conditions of such training [12]. The problems of integration of education, science, and production are in the lack of qualification of master's graduates, poor quality of education and the level of introduction of scientific developments in the conditions of the real production process, inefficient use of budgetary funds [26].

The causes of arising of such a problem are: insufficient formation of professional competences in future specialists needed by stakeholders; low level of practical training of specialists and financing in the development of modern material and technical base of higher education institutions and enterprises; insufficient involvement of specialists with experience of practical work and appropriate qualification in the teaching.

The results of the analysis of the basic approaches of scientists to the definition of the concept of "organizational and pedagogical conditions" make it possible to determine their main characteristics: components of the educational process of training of future specialists; reflect the set of circumstances, factors that have a positive effect on the effectiveness of their preparation; they contain internal and external factors that allow improving the quality of professional training of specialists.

Thus, under the organizational and pedagogical conditions of training of future specialists through the integration of education, science, and production, we understand the circumstances and factors related to the educational activity of future specialists, aimed at improving their preparation for professional activity in the process of training within dual form of education.

Based on the results of the study, the basic organizational and pedagogical conditions that provide effective training of future specialists through the integration of education, science, and production, are defined by us as follows: formation of positive motivation of future specialists for professional activity; improving the content of general and vocational training; use of innovative techniques and technologies in the learning process and organization of technological practice; development and implementation of a complex of educational and methodological support [17].

Let us consider the content of each of the specified conditions in detail.

The first pedagogical condition is the formation of positive motivation of future specialists for pedagogical interaction.

Scientists and researchers focus on the close relationship between the psychological setting, motivation and professional competence of the teacher. Namely teachers with a high level of motivation to confidently take responsibility, make decisions in non-standard situations, persistently go to the goal, belief in the effectiveness of their pedagogical activity and its results. Therefore, the need to form a positive motivation for any professional activity, in general, is one of the important problems of today.

Considering this, the second pedagogical condition is to improve the content of general and vocational training disciplines.

The need to improve the content of training of future specialists through the integration of education, science, and production is based on the strengthening of the role of partnerships between the teacher and students in the educational process, in particular, subject-subject interaction in future professional activity. Since the main characteristic of a specialist is the level of his professional competence, which involves the presence of ability to project the pedagogical process in higher education institutions, the systematicity of which depends on the ability to carry out pedagogical interaction with all subjects of the educational process.

The content of professional training of future specialists is most fully reflected and implemented in the educational documentation, the development of which should be carried out in accordance with methodological approaches and didactic principles that determine the selection of educational information, its structure, content, relationships between elements in the creation of curricula, programs, textbooks. This determines the implementation of new approaches to the content-structural and organizational and didactic foundations of professional training of specialists. Content should be improved in such a way as to promote students' knowledge of the integration of the educational and scientific component into production, methods, techniques and mechanisms of its provision on a subject-subject basis, as well as help the formation of dual education skills and skills. Features of subjects of pedagogical process and organizational and pedagogical conditions. The content should include knowledge of the essence and features of dual education, the principles of its organization, types of dual education and its characteristics; forms of behavior in dual education, as well as types of conflicts during dual education and mechanisms for their resolving.

Improvement of content, in turn, requires reviewing methods and technologies of training of future specialists for professional activity. Thus, the third pedagogical condition is the use of innovative techniques and technologies in the learning process and organization of technological practice (internship).

Since dual education involves cooperation, joint solution of educational and scientific tasks between the head of the educational institution and enterprises and students, making constructive decisions in different pedagogical situations, professional training of the future specialist should be ensured through the formation of creative thinking, ability to establish interaction, quickly navigate pedagogical situations and make a rational decision. The use of innovative techniques (the method of formation of motivation for the implementation of professional activity; the method of formation of professional and pedagogical knowledge and skills; the method of formation of professionally important qualities) aimed at the formation of all structural components of the implementation of dual education facilitates resolving of these tasks [18].

Pedagogical technologies for the training of future specialists through the integration of education, science, and production (projected, training technologies, coaching technology, case technology, information and communication technologies) should contribute to the change in the role of the subjects of educational process, their attraction to cooperation and knowledge gaining activity, give the ability to model pedagogical situations related to future professional activity, thereby developing behavior skills in standard and non-standard situations.

The use of innovative techniques and technologies of training of future specialists through the integration of education, science, and production makes it possible to solve the following tasks: helps to students' solving of interpersonal problems; provides feedback between students and the teacher, thereby contributing to a better understanding of self and others; involves students in the system of social relationships, shapes the ability to respect others; forms a holistic view of future pedagogical activity;

develops practical skills and interaction skills on the basis of cooperation.

Professional training of future specialists becomes more effective if students actively interact with each other and with the teacher during the educational process, jointly solve educational tasks, 'absorb' and develop skills in practice in real production, undergo intensive preparation for everyday professional life.

Thus, the use of innovative techniques and technologies in the educational process helps to involve students in active interaction with each other, to form the ability to work in groups and subgroups, thereby contributing to the formation of a culture of interaction.

In order to enhance the content and increase the effectiveness of the use of innovative techniques and technologies, it is necessary to develop a complex of educational and methodological support, which will help to improve the quality of training of future specialists in the conditions of distance education, will ensure the integrity of their professional training in the unity of goals, content, methods, forms, innovative techniques and technologies. Therefore, the fourth pedagogical condition is the development and implementation of a complex of educational and methodological support.

The complex of educational and methodological support must be 'designed' in accordance with the concept of methodological approaches, didactic principles, which contributes to the selection of educational material and its logical construction, the use of innovative techniques and technologies aimed at the training of future specialists through the integration of education, science, and production.

The complex of educational and methodological support for the training of future specialists through the integration of education, science, and production includes a set of documents, scientific, educational, methodological materials that determine the content of their training, its structure and result and establish the peculiarities of the course of the educational process, taking into account trends of educational development.

To the normative documentation, we include educational and professional programs of preparation of students of specialty 015 "Vocational education" at the first (Bachelor's) and second (Master's) levels of higher education. Regulatory documentation is the basis for the development of other components of a complex of educational and methodological support, in particular educational and methodological complexes in various disciplines.

The educational and methodological documentation of the training of future specialists through the integration of education, science, and production, developed by us during the study, contains: curricula of the disciplines "Fundamentals of experiment", "Methodology of vocational training", "Technological practice"; from these disciplines - notes of lectures and methodological recommendations for the implementation of practical (laboratory, training, seminar) classes, independent work of students, course work; it also includes program and methodological recommendations for technological practices.

Diagnosis tools contain comprehensive control work, examination tickets for the final control, test tasks, a list of questions for oral survey and self-control in the disciplines: "Fundamentals of experiment", "Methodology of vocational training", "Technological practice", etc.

Thus, each of the certain pedagogical conditions is aimed at training future specialists through the integration of education, science, and production. At the same time, each condition taken separately can not fully ensure the efficiency of the educational process, and only their systemic unity allows to successfully carry out professional training of future specialists.

To determine the level of readiness of specialists for the implementation of professional activity through the integration of education, science, and production, components and indicators corresponding to them are identified, which will ensure the formation of organizational and pedagogical conditions which we outlined: a) motivational-emotional - motivation for advanced training in accordance with the requirements of production and psychological readiness to carry out professional activity; focus on team activity; attitude to professional values; b) cognitive - knowledge of job descriptions, norms, orders, rules and values of professional activity; knowledge of the method of writing scientific works, professional knowledge; activity - possession of professional skills and skills necessary in the course of professional activity; 'reflective' implies the ability to self-reflection and self-esteem.

The assessment of the readiness of future specialists for the implementation of professional activity through the integration of education, science, and production was carried out at three levels, namely: high, medium, and low.

Also, during the ascertaining stage of the experiment, a complex of adapted methods of studying the levels of formation of the definition of the definition at different stages of the experiment was adopted.

The determined components of specialists readiness for professional activity through the integration of education, science and production are the basis for the development of the necessary methodological tools with which diagnosis of the specialist' preparedness was carried out. The total sample size was 120 students. The control group consisted of 58 respondents, and the experimental included 62 respondents, including 68 women and 52 men.

The experimental study was conducted at the Hlukhiv National University named after Olexander Dovzhenko among future specialists in order to determine their level of readiness for professional activity through the integration of education, science and production.

The ascertaining stage of the study was intended to verify indicators according to certain criteria of readiness for professional activity through the integration of education, science, and production, namely motivational-emotional, cognitive, activity and reflexive.

In order to determine the level of motivational-emotional component of future specialists, we used the MSCEIT test, which consists of tasks with the correct and incorrect answers, that is most traditional for the diagnosis of intelligence. The test distinguishes four groups of emotional intelligence capabilities with sections of tasks to identify each of them.

The MSCEIT test is adapted by us by including students in the training programs for the development of the following components in them: perception, assessment and expression of emotions; use of emotions to increase the efficiency of thinking and activity; understanding and analysis of emotions; conscious management of emotions for personal growth and improvement of interpersonal relationships.

I. The first component: perception, evaluation and expression of emotions - section A (measurement of perception of persons) and E (dimension of picture perception).

Perception, assessment and expression of emotions or identification of emotions Y in section A will use the Exercise "Demonstration", where future teachers of vocational training are suggested to choose and clearly demonstrate 4 photos of faces of people who need to be assessed by the degree of expression of 5 emotions that are offered to choose a test participant. In total, there are 7 sections: happiness, sadness, fear, anger, disgust, surprise, excitement. The expressiveness of emotions is evaluated on a 5-point scale: from 1 - "least severity" to 5 - "strong severity".

Objectives: to improve understanding of basic principles or theory, to give future professionals the opportunity to draw conclusions from experience, to interest students, to develop critical thinking.

II. The second component: the use of emotions to improve the efficiency of thinking and activity - Sections B (measures the ability to assimilate own current experience, describe feelings for a particular person) and F (measures a person's ability to describe his emotional states) [6; 23].

Checking the level of development of cognitive and activity criterion in teachers was carried out by testing according to the developed methodology, in the content of which a number of statements, that should be disclosed, for example: "Features of psychological work with personalities of different types", "Methods for submitting material to students with the use of digital and innovative technologies", "Technologies and techniques of practical work in the conditions of distance education", "Features of assessment of acquired professional competences of future specialists during dual education", "Dual educational activity and current educational laws, ethical rules and regulations". According to these statements, teachers should give detailed answers and show a level of professional competence on a scale from 0 to 3 points.

The test results show that future experts in general do not have theoretical knowledge and methodological techniques during dual training in real production.

The test of the reflexive component of the readiness of future specialists for the implementation of professional activity through the integration of education, science, and production was carried out by interviewing students in order to evaluate the levels of their ability to reflect and self-assess the results of their own activities.

Results of the ascertainment stage of the experimental study suggest that 67% of respondents see themselves as dual education subjects and believe that it is necessary to work on its improvement, however, 29% of those surveyed are mediocre in the development of dual educational space, while 4% of respondents consider their skills low and not sufficient for teaching by dual training.

The results of the testing of the readiness of future specialists to carry out professional activity through the integration of education, science, and production were depicted in Figure 1.

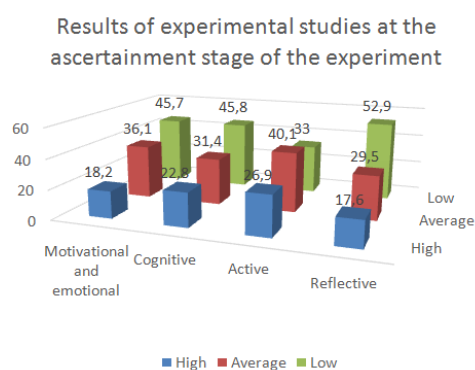


Figure 1. Summary of consolidated data at the ascertaining stage of the experiment

After conducting the ascertaining experiment and processing the results, the next stage of pedagogical research was the formative experiment whose purpose was to experimentally test the methodology of the formation of modern organizational and pedagogical conditions for the training of specialists through the integration of education, science, and production according to the outlined components, namely: motivational-emotional, cognitive, activity, reflective.

To improve the motivational side of the readiness of specialists for the implementation of professional activity through the integration of education, science, and production, the following techniques and methods were used: coaching based on the use of a methodological system, the basis of which is the methods of activation of learning that ensure the formation of professional and socially significant qualities of future specialists. Coaching consists of scientifically grounded integrated programs of interaction of the teacher and students in the educational process (analysis of the problem situation, method of emotional stimulation of learning, method of creating a situation of cognitive dispute, application of the method "brainstorming", educational measures).

"Confuse" exercise was used to check the emotional constituent of this component. Section B according to the method used consists of 5 interesting stories aimed at understanding what emotions contribute to the more effective performance of activities of various kinds. The test participant should determine how useful it will be in this situation to feel a particular emotion. In total, 3 emotions are offered in each question, which are evaluated on a 5-point scale: from 1 – "does not help" to 5 – "helps".

Objectives: use of emotions to focus on priority for thinking things, focusing on important information; the use of bright and accessible emotions as auxiliary means of thinking and memory; the use of emotional mood fluctuations to change the prospect of individuals (from optimistic to pessimistic) and to expand the diversity of possible views on certain events; updating those emotions that contribute to solving certain tasks (for example, a good mood improves the solution of creative problems).

III. The third component - understanding and analysis of emotions - section C (the understanding of emotions over time, as well as understanding how emotions follow one another, change each other was studied) and G (measuring of the ability to distinguish between mixed and complex feelings). In the MEIS version, section C was broken down into 2 separate sections. There was also a section on measuring the relativity of emotions (stories about conflict situations where the subject was asked to imagine the feelings of one and the other side of the conflict).

Participants of the training were offered an exercise "Discussion in pairs". Section C consists of 20 descriptions of different situations in which the characters feel different emotional states, with 6 options for answers in each. Understanding the situational conditionality of emotions involves both a cognitive understanding of the meaning of the situation and the experience of going through similar states. For each question, one has to choose the most suitable answer.

Objectives: ability to mark emotions and their verbalization; understanding the difference between not similar in names, but close in content emotions (e.g., sympathy and love); the ability to interpret the value of changes in emotions, understanding of causal relationships (for example, the occurrence of longing after loss); the ability to understand the complex of feelings, for example: simultaneous love and hatred, or such a mixture of feelings as a reverential fear (which consists of fear and surprise); the ability to recognize unexpected changes in emotions (for example, a change in anger to satisfaction, or a change in anger to embarrassment).

IV. The fourth component is a conscious management of emotions for personal growth and improvement of interpersonal relationships - section D (management of own emotions) and H (management of other people's emotions). The participants were asked to imagine themselves at the place of the heroes of the stories proposed by them and to evaluate options for further actions.

Section D is devoted to the ability to effectively manage own emotions. That is why we have chosen the exercise "Perspective approach". Its purpose is to give students the opportunity to apply critical thinking, deep processing of material, analysis,

synthesis and evaluation. The section offers 5 stories that describe some events. There are 4 options of continuation for each story. The respondent should evaluate every continuation of the story in terms of how effectively such actions can lead to a good mood or its preservation in the main character. The evaluation is carried out on a 5-point scale: from "a" – "very inefficient" to "e" – "very efficient".

Objectives: To develop the ability to remain open to feelings, both pleasant and unpleasant; the ability to consciously pay attention or distract from emotions, depending on the assessment of their informativeness or utility; ability to conscious control of own and other people's emotions (for example, recognition of typicality, influence, understandability of emotions); the ability to manage own and other people's emotions (for example, the ability of lowering negative emotions and increasing pleasant ones without reducing or enhancing the information they can convey).

The results obtained allow giving a constructive assessment of the overall level of emotional intelligence (high, average, and low level) and determining the ways of its development. The points are calculated by means of a key made on the basis of expert estimates.

Improvement of the theoretical and practical line of specialists' readiness to carry out professional activity through the integration of education, science, and production was ensured due to the implementation of cognitive and activity components through the involvement of future specialists in dual form training at the enterprise, the purpose of which was to increase the level of professional competence of future specialists and the formation of the second and third pedagogical conditions.

To diagnose the degree of formation of the activity criterion, teachers were asked to solve pedagogical situations in the conditions of dual education. Students were offered 12 typical pedagogical situations that occur in the educational process of higher education.

To check the reflexive component of the specialists' readiness to carry out professional activity through the integration of education, science, and production, a bank of test tasks was developed for carrying out self-assessment by future specialists. Students need to evaluate in points the level of formation of a particular skill.

According to the results of the formative stage of the experiment, the effectiveness of the developed methodology for the formation of modern organizational and pedagogical conditions of training of specialists through the integration of education, science, and production was carried out, which was made possible through the check of the levels of formation of components.

The results of the diagnosis of components of specialists' readiness for professional activity through the integration of education, science, and production at the formative stage of the experiment are presented in Figure 2.

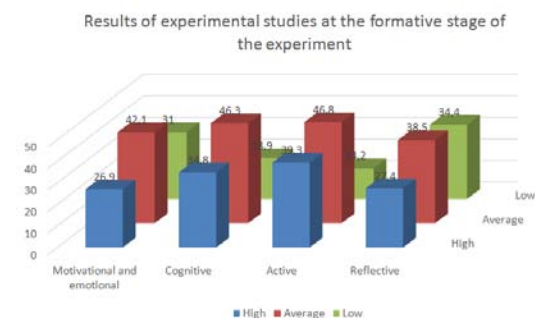


Figure 2. Summary of consolidated data in the formative stage of the experiment

Thus, according to the results of the experimental study, it was found that the advantages of dual learning should include: formation of professional competences in future specialists during training, taking into account the peculiarities of the work of a particular enterprise; graduates of the university will have the opportunity to get a job at enterprises - the bases of practice with which the Glukhiv National Pedagogical University named after Olexander Dovzhenko will conclude contracts; the use of a system of contracts between students and enterprises, which facilitates the training of young professionals under a special curriculum within the continuous educational process; the graduate, in further employment, does not require psychological and professional adaptation, which has a positive effect on the overall performance of the enterprises.

4 Conclusion

In the course of the study, the concepts of “organizational and pedagogical conditions”, “training of specialists”, “readiness of future specialists for the implementation of professional activity through integration of education, science, and production”, “components of readiness” are defined. Perspective directions of implementation of modern organizational and pedagogical conditions of training of future specialists through the integration of education, science, and production in the institutions of higher education of Ukraine are formed.

The research was conducted in order to test the methodology and outlined components of future specialists’ readiness to carry out professional activity through the integration of education, science, and production, namely: motivational-emotional, cognitive, activity, and reflexive.

In the process of conducting the ascertaining stage of the study, it was revealed that most of the future specialists are clearly aware of themselves as the subjects of dual education, but have not sufficient experience in studying in this form.

On the basis of a qualitative analysis of the diagnostic study, it was found that future specialists are not sufficiently aware of the functions that should be performed while studying in the dual form of training and what competencies they should possess.

However, the summarized results of the formative stage of the experiment after the introduction of author’s techniques give reason to claim that 20 % of respondents in both control and experimental groups are at low readiness for professional activity through integration of education, science, and production, while the vast majority - about 80 % - are on medium and high levels of readiness.

Thus, the development and implementation of updated forms and means of forming the professional competence of future specialists will increase their readiness for professional activity in the dual form of study.

A promising area of further research is the consideration of modern programs, including remote ones, enhancement of professional competence of future specialists, the use of digital technologies to ensure their training in the dual form of learning. The presented results of the scientific research, as well as the conclusions and prospects of further research, can be used as an effective scientific base to improve the training of future specialists in the dual form of education in different countries.

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