

The dual learning system as the basis of the mechanism of interaction between educational institutions and production reality

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Abstract — The article analyzes the relevance of using the dual learning system in the pedagogical activity of educational organizations for forming the necessary personal characteristics of students as future specialists. The main characteristics of the dual learning system are presented; features of its use in the activities of educational organizations are disclosed; its application is substantiated on the basis of empirical verification of its results of a sample of university students.

The materials of the article are of practical value for persons, involved in the training of specialists in the system of higher and secondary professional education.

Keywords — *dual system, real production, educational organizations, students, practitioners, professional education, immersion technologies, production reality.*

I. INTRODUCTION

The relevance of the research is due to the need to study and introduce the dual learning system as the basis of the mechanism of interaction between educational institutions and production reality into the pedagogical activity.

Modern society needs highly qualified specialists, that have not only high academic progress, but also have analytical and creative abilities, initiative, social responsibility, zero gravity thinking, knowledge of new technologies and the willingness to use them in practice, a wide outlook, that provides quick educability, motivation to constantly develop their competence.

In this regard, this article is aimed at disclosing the potential of the dual learning system as the basis of the mechanism of interaction between educational institutions and the practice of real production, implemented within the framework of various types of practice.

II. MATERIALS AND METHODS

The dual system should provide 3 main points:

1. In the learning process, get involved in production practice in order to bridge the gap between the theory of learning and real production practice.
2. To learn new mechanisms for improving production.
3. To get a workplace, learning and working at the enterprise.

The part-time education at the university is most suitable for the implementation of all three points, if the student works according to the profile of education. He is included in real production, receives knowledge of modern technologies, already has a workplace in which he practically implements theoretical training.

The similarity of the dual learning model with the target training model is also found. Targeted education is aimed at training specialists to work in a specific production conditions. This training is characterized by the presence of jointly formulated requirements for the level of training by the university and the enterprise; involves a student in solving production problems of the enterprise; the funds of the

enterprise are used to educate students. Therefore, as a result of target training, those effects, that the dual education system provides, can be achieved: a combination of a high level of theoretical training of the trained specialist with the formed professional and practical skills of the student, the formation of the ability to work with modern technical devices and equipment, high motivation of students to the effectiveness and efficiency of learning, increasing the student's responsibility for the results of their activities [6].

The usual full-time course of study does not fully provide the synthesis of theory and practice, as the dual system contemplates, despite the presence of various types of practice, implemented by universities. Consider the features of industrial training of students in universities of Kurgan and Shadrinsk. Let analyze the mechanisms of interaction between universities and specialized organizations, production sites, and identify the limitations of the interaction mechanism.

So, in FSBEI HE "Shadrinsk State Pedagogical University" (ShSPU) the following types of practice are implemented: educational, industrial (pedagogical) and pregraduate practice. The purpose of the first is to obtain primary professional skills. Students get acquainted with the types and areas of work of educational organizations, legislative and regulatory documents, job descriptions, with the implemented labor functions, working conditions, internal code of conduct. Observe and analyze the educational work in the educational organization, develop and conduct educational activities with their subsequent analysis.

The purpose of industrial practice is to obtain professional skills and experience of professional activity. The practice can be carried out in ShSPU or in a specialized organization in Shadrinsk, can take an exit character, if it is carried out in the settlements of the Shadrinsk region. Practice can take a field form (for example, archaeological practice). [Regulations on the practice.]

This organization of practice relates to the main aspects of work activity: conducting training sessions, organizing out-of-school activities, filling out documentation. It provides an opportunity to get acquainted with the activities of educational organizations, with the features of the educational process, with students of different age groups. But the temporary nature of the practice does not allow to adapt to the educational environment as a teacher, it requires a long adaptation period after completing studies at the university. The period of practice is not sufficient for the development of professional skills. Practice is only an attempt to simulate the educational situation with the execution of a professional role.

Since the material, technological, methodological, scientific base of educational institutions is different, practice in one type of school forms certain ideas about the educational process, which can significantly differ from the specifics of the educational process in another educational institution.

Kurgan branch of The Russian Academy of National Economy and Public Administration (RANEPA) implements the same types of practices, the meaning of which is little different from the practices at ShSPU. The gradual entry into the profession is assumed: in the course of educational

practice, students begin to form practical skills, that were considered during a theoretical course; in industrial practice, students perform work as an employee of the organization, following the work schedule and charter of the organization. In the course of pregraduate practice, the task of finding information, that will be used to write bachelor's work, is solved. [7]. Students get acquainted with the activities of divisions (departments, administrations) of the authority, manufacturing enterprise, business structure under a part-time working day for 2 weeks. They carry out the instructions of the head of practice from the organization. [5, p.4, 5.] Students should study the theoretical basis of the organization of the management process, structural and functional approach to its implementation, management style and administrative culture in the organization; get acquainted with the regulatory position of the organization in which the practice takes place. Students get acquainted with the organizational structure of the body, the organization of its activities, the procedure for interaction with other bodies, citizens and organizations. They study the basic parameters of professional employment activity at the posts of the state civil service (posts of the municipal service, posts in the organization). They take part in decision-making on issues, related to the official duties of the state civil service (posts of the municipal service, posts in the organization) on behalf of the authorized representative of the body. [5, p.5-6]. Ultimately, students must learn to develop and make management decisions, apply basic management methods; to develop methodological and reference materials; to model administrative processes and procedures in bodies. [4, p. 4-8.]

In reality, in practice, students are offered the simplest work with documents, which does not provide their entry into the process of making a managerial decision. The elementary nature of the procedures, in which students participate, does not allow the formation of managerial skills. The practice retains a familiarization character with the authority at all its stages.

The dual system offers opportunities to emerge the role of industrial training. But in the Kurgan region the necessary conditions for the implementation of the dual system were not formed. At the same time, the need for qualified trained personnel is felt in all areas of activity, including the education system and SMM. Therefore, the introduction of elements of the dual system to improve the efficiency and quality of education in the regional education system is a pressing task.

To do this, it is necessary to ensure the implementation of the basic principle of the dual learning system - equal social responsibility of educational organizations and enterprises for the quality of training. [7]. While organizations are barely interested in working with students, employers should be the initiators of this interaction. They can create the basic conditions for learning in a specific production environment and the forming specific professional competencies of the appropriate skill level. [1, p.26.]

It is possible to carry out the process of convergence of the educational process in a university with a real production process in different ways.

For pedagogical universities, the possibilities of introducing elements of the dual system are offered the following:

- If there are vacant places in the educational institutions of the city, it is possible to conclude agreements on the positions of teacher-trainee, and the student's educational activity is determined by an individual program, consistent with his professional activities. A trainee may fulfil the role of a moderator in groups of students, who did not receive a place of permanent practice.
- In order to more fully immerse into the pedagogical environment of the educational institution, students can choose for themselves a virtual pedagogical site - the official website of the school, in which they would like to practice. Acquaintance with regulatory documents, with job descriptions, with curricula, methodological recommendations, the organization of the educational process, the experience of school teachers, assessment of effectiveness, etc. becomes more specific, substantive, practice-oriented.
- Significantly increase the share of practical exercises for developing professional skills and attainment. To do this, create a system of skills, that require the formation, and then develop a schedule for their development during practical exercises.
- In order to expand the training base for practical classes, agreements with schools in the city can be made to hold open house days (on a regular basis) with individual classes, during which students could conduct classes or educational activities with schoolchildren. Actively attract senior students to conduct classes with students of 1-2 courses, as well as with students of other profiles.
- The student's educational-methodical and research work should be built as an individual path of professional development, during the implementation of which the student develops a full set of curriculum and thematic plans, options of individual programs, including out-of-school activities.
- Organization of joint research work between students and schoolchildren, where students are curators of schoolchildren of their research projects. The work is carried out with agreement with the school, as well as the possible participation of students in the implementation of out-of-school activities with schoolchildren and the involvement of schoolchildren in the out-of-school life of students.

For the specialty state and municipal administration, elements of the dual system, in our opinion, include:

- Contractual arrangements, fixing a student-trainee in the state of a particular state or municipal body.
- Using the virtual platform of the official website of SMM bodies, at the discretion of the student himself.

- Participation of specific students as tasks for practical training in open meetings of the SMM bodies, at round tables, conferences, public hearings and other forms of involving in the activity of the SMM system.
- Implementation of social mini-projects in the framework of interaction with the SMM bodies in order to identify problems of interaction, assess the effectiveness of government bodies activity.
- Analysis of specific management decisions, development of their own projects of these decisions. Implementation of other analytical and informational work: systematization of available materials (on the chosen research topic), compilation of analytical notes, analysis of results and assessment of effectiveness.
- Inclusion of students in working design groups for the development and implementation of state and municipal projects.
- Orders of state and municipal authorities for the implementation of information, analytical, design services, which can be rendered by specialized student groups.
- Creation of educational situations, in which students must solve specific practical problems, where the real social effect is being an assessment of the effectiveness of learning.

We suggest identifying aspects of emerging students' practical training with the framework of "immersion technology in production reality." It is this technology, that creates a certain system to compensate the lack of communication with production sites, even in the absence of a dual education system. "Immersion technology in production reality" can be used by any university in any direction of training (pedagogy, management). It performs a compensatory function. Its main specificity is the involving students in the real production process, the performing of various roles, available for execution.

During the implementation of the elements of the dual system, the following qualities are formed by the graduate: curiosity and desire for the implementation of creativity and innovation; volitional qualities, that allow to make professional or managerial decisions, that fall within his competence; aspiration for success, allowing to develop not only yourself, but also to develop the industry, scope of activity; devotion to the team and organization .. [2, p.151.] The main thing is that the graduate knows the features of the work of specific organizations, the specifics of their communications, receives experience of participating in the development of managerial decisions, documentation, organization of work and the performance of various functions, that underlie professional activities.

III. RESULTS

After analyzing the employment data of graduates in the specialty, we found, that about 70% of graduates of pedagogical universities appear to be employed in the

specialty, while the profession of a teacher remains one of the most popular in the labor market [9].

The Career.ru research service conducted a survey to find out what percentage of Russian specialists work in their specialty after graduation. It turned out, that only 53% plan to work in their specialty. Perhaps, these are the people who experienced the occupational formation. 27% found it difficult to answer this question, and 20% of respondents realized, that they were not attracted to their chosen profession. Among university graduates, only 30% of Russian specialists work in their specialty they received at the educational institution. Professional activity of 40% of domestic workers is not connected in any way with their education, and 23% are employed in the related field [10].

These data indicate, that the traditional lecture-seminar learning system is not able to form a competent specialist and requires changes. In itself, the designation of competencies as a learning outcome, without changing the forms and methods of organizing the educational process, does not lead to the desired result.

IV. DISCUSSION OF THE RESULTS OF THE RESEARCH

We studied the specifics of professional motivation and professional orientation of students of a pedagogical university, studying in the direction of “History” and “Law”. The following were used for this: test “Motivation of learning at a university” (E.I. Ilyin), a modified differential diagnostic questionnaire by A.K. Osnitsky, a questioning of students. 122 students took part in this research (68 first-year students, 54 fourth-year students), learning in the field of preparation 44.03.05 “Pedagogical education” with the profiles “History” and “Law”.

The analysis of the results showed, that the vast majority of students come to the university with academic or professional motives (figure 1). This suggests, that they are focused on obtaining knowledge, they are interested in the learning process itself, they are able to study independently and systematically, without constant reminders from teachers. Such students can successfully complete tasks without much stress and, at the same time, without loss of quality.

In second place in importance were professional motives - the desire to master the profession. They are enthralled by what to do, are interested in the process and the result of professional activity. Students feel the importance of their profession and its role in society.

Almost a quarter of students are oriented to get a diploma. The fact of having education, which can be useful in employment, rather than its essence, is significant for them.

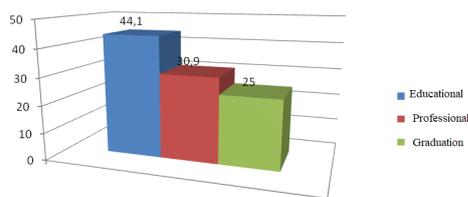


Fig. 1. Distribution of students by awareness of their profession, %

From the point of view of E.I. Ilyin, the predominance of motives on the first two scales indicates an adequate choice of a profession by a student and satisfaction with it. From our point of view, this indicates a good basis for further professional training, which can be used in the formation of the necessary competencies.

The use of MDDQ by A.K. Osnitsky allowed to clarify the professional proclivities of students. A comparative analysis of the results, obtained using this technique, allows to obtain information about the interests, skills, preferences of the student and his formation as a subject of activity, as well as to successfully predict satisfaction with the chosen professional activity.

Firstly, we identified the presence or absence of interests, supported by skills and a positive attitude, even under coercive conditions. This made it possible to single out the sphere of effective interests (proclivities) of students, that makes a real contribution to its subjective and personal development and to separate it from the sphere of interests, that have no real strength (which do not present their own value for the student).

Secondly, an indicator of the conjugation of interests, skills and a positive attitude towards occupations in any field serves as an indicator of the reflection of interests and skills.

Thirdly, from a comparison of the attitude to tasks “earlier and now”, it is possible to extract information about the dynamics of the development of interests, about the dynamics of personality changes, related with the moment of the examination: establish the presence of changes and their path; development, stagnation or destruction of the sphere of interests and aspirations.

The results are presented in tables and figures.

TABLE I. THE DISTRIBUTION OF STUDENTS DEPENDING ON THE EXPRESSIVENESS OF INTERESTS IN VARIOUS AREAS OF PROFESSIONAL ACTIVITY, %

Area of professional activity Course	M-P	M-T	M-M	M-S	M-A	Interest is not expressed	Related professions
	1st year	2.9 4	8.8 2	26.4 7	11. 76		
4th year	0	9.2 6	27.7 8	14. 81	7.4 07	9.26	31.48
Total	1.6 4	9.0 2	27.0 5	13. 11	10. 66	10.66	27.87

The table shows, that the frequently encountered professional preferences include the areas of activity "man-man" and "man - an artistic image." Professional interests, related to different types of professions are present in 31.48% of first-year students, and 27.87% of fourth-year students, 30.4% of fifth-year students. As a rule, these are the types “man - a sign system” and “man - an artistic image”. It can be assumed, that this is due to the presence of leisure hobbies, related with the phenomena of artistic reflection of reality. If speak about professions such as “man - a sign system”, then the development of legal disciplines, the study of legislative

acts is fully consistent with this type and there are no particular differences in the choice.

The use of the indicator of conjugation of interests, skills, a positive attitude to occupations in any field can serve as an indicator of the reflection of interests and skills. Sufficiently developed reflection is determined by the coincidence of high values of interests, skills, a positive attitude and ease of adaptation in a particular occupation and low values in another occupation, undeveloped reflection is noted, if high values of these indicators relate to incompatible occupations.

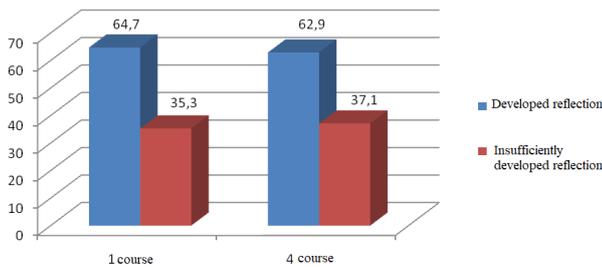


Fig. 2. Distribution of students by the degree of development of reflection of professional interests and proclivities, %

As can be seen from the figure, most students are adequately aware of their interests, proclivities and abilities, imagine in which field of activity they can use them effectively. However, it is noteworthy, that by the fourth course there is no increase in the level of reflection of one's professional interests and inclinations. The indicators remain almost unchanged. I.e. the very crystallization of a professional orientation may not fully occur and requires additional attention.

When questioning graduate students, it was revealed, that only 57.4% answered positively to the question of whether they plan to work in their specialty; 22.2% said "maybe"; 11.1% found it difficult to answer; 9.3% gave a negative answer.

V. CONCLUSIONS

All of the above allows us to talk about the need to change the approach in the training of specialists at a pedagogical university, the need to emerge the application entity of learning by involving students in professional activities from the first courses.

Based on the fact, that professional education should ensure high demand, mobility, competitiveness and success of specialists in modern conditions, it is important to consider the potential of the dual training system, as well as proposals for its implementation, when solving this problem.

Proposals for the introduction of a dual learning system into educational organizations:

- improving the quality of subject, psychological, pedagogical and professional training of future specialists with amendments to the educational process of the university taking into account the demand of educational organizations and employers;
- increasing the motivation of subjects of education in

order to constantly develop their competence, gain practical skills and knowledge, to ensure the willingness of a future specialist to solve various production problems, including those, that are beyond stereotypical solutions;

- the development of critical, systematic thinking of future specialists, who are able to assess the risks of the influence of unacceptable evidence, ideological interventions, political preferences, etc., ready to implement non-standard decisions in practice activity with the adoption of social responsibility for the results of their work;
- flexibility and variability of the content of the educational process technologies, the use of innovative technologies in order to prepare specialists, directed at deep, omnifarious professional knowledge, the ability to apply them in solving practical problems;
- coordination of the programs of educational, pedagogical, industrial predegree students practice with employers, giving it a systematic, continuous coordinated nature, enabling students to immerse into the essence of future professional activity, to design their individual path of professional development;
- diagnostics and monitoring of teaching and educational, production processes in order to correct and timely update curricula and training programs, taking into account the demands of employers and the needs of a particular region;
- creation of a production and educational cluster, i.e. active participation of the employer in the creation of educational infrastructure, in the educational process;
- interdisciplinary communication of educational programs, forming the necessary competencies;
- correlation of strategies of regional education systems with strategies of socio-economic development of the subjects of the Russian Federation, taking into account the development of the innovative sector of the economy;
- the formation of a legislative and regulatory frameworks of the interaction of educational organizations and enterprises, organizations for the training of high-demand workers in production, specialists;
- the transfer of the educational process to solving the practical problems of professional activity;
- introduction of a system of permanent probation in organization and enterprise instead of short-term production practice (especially in organizations, enterprises with vacancies);
- modeling of the educational process, taking into account the requirements of production, the specifics of the organization activity;

- student orientation to achieve results, that contribute to the development of the industry, organization, production, including on contractual terms;
- providing students aware of key issues, best practices of the professional industry;
- analysis of practical activities, thanks to information technology, in order to reveal shortcomings in the work of professionals and in the organization of activities;
- building not only an educational, but also a professional path, so that the student clearly sees the prospects and ways to achieve them, while realizing a personality-oriented approach and individualization of learning to achieve real professional formation;
- creation of student innovative laboratories in the educational institution (research, methodological).

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