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Interactional experience with the employer during a selection of educational content in a single-industry town

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Abstract. Training of personnel for industrial enterprises of a single-industry town is an opportunity for the stable development of the local labor market. As a rule, single-industry towns of our country are mechanical engineering or coal-metallurgical towns. Nizhny Tagil is no exception. On its territory there are metallurgical, mining and machine-building enterprises. Colleges and universities that train specialists for town-forming enterprises can be a driver for the stable functioning of a single-town economy. For this, it is necessary to adapt the content of educational programs to the actual needs of employers. The article describes a number of problems that representatives of educational institutions had to solve in the process of interaction with an employer to update the content of education. Such problems were: difficulties in visiting enterprises, in particular, defense (machine-building) ones, ambiguity in the interpretation of the concept of 'competence' by teachers and employers, the difficulty of dividing workers by education levels on the part of employers. A simplified version of the employer survey form is proposed. It allows to determine the priority areas in the training of personnel for the industry.

1. Introduction

Single-industry towns have a special type of urban economy. This is due to the fact that a significant part of the employed population is provided by one (rarely two) large enterprise. The low level of diversification of the urban economy of such towns is negatively reflected in the jumps of the unemployment rate, the fall in the well-being of the townspeople during the periods of negative macroeconomic shocks and changes in the markets where the city-forming enterprise operates [1, p. 111; 2].

Single-industry towns of our country are mainly machine-building or coal-metallurgical towns [3]. Nizhny Tagil has both types of enterprises on its territory, in particular, a mining and metallurgical plant, carriage-building plant. Accordingly, state educational institutions of higher and secondary vocational education train specialists in the relevant specialties. The exception is small groups of institutions that train middle and higher-level specialists in areas of training related to the setting up of the city itself (medicine, pedagogy, public catering, etc.).

The model of a demanded graduate can be built taking into account the requirements for this specialist. Such requirements are formed from several positions:

– requirements from the state and society, which are formulated on the basis of regulatory documents, the content of professional and educational standards;

– requirements of the world of work (the needs of future employers);
– requirements of the subjects of the educational process, including the future specialists themselves.

Institutions of higher and secondary vocational education that train specialists for town-forming enterprises can be a potential driver for the stable functioning and development of the local labor market [4, 5, 6]. Adaptation of educational programs to the actual needs of town-forming enterprises is one of the tools to stabilize the economy of a single-industry town [3, p. 123; 4, p. 62]. This is possible only if stable practices of interaction and cooperation between enterprises and educational institutions are formed.

The experience of interaction with employers in the selection of the content of higher and secondary vocational education will be described below, the problems encountered in this work are indicated.

2. Materials and method

As part of the transition to new educational standards, it was necessary to update the content of curricula and educational programs of higher and secondary vocational education. The author of the article was directly involved in the modernization of the content of training future IT specialists at the Mining-metallurgical college and the Nizhniy Tagil technological institute (branch) of the Ural Federal University in terms of bachelor's and master's degrees. Information technologies are being actively implemented in all spheres of society, they make it possible to automate modern production facilities, and therefore the training of IT specialists for modern industrial enterprises is a task that requires a prompt solution.

The study used interview and questionnaire methods. The respondents were the heads of structural divisions of town-forming (machine-building and metallurgical) enterprises.

Surveys of employers in order to identify the needs for specialists and the structure of their competencies are a traditional way of interaction between the university and the employer [7].

It should be noted that all the respondents confirmed the relevance of selection the content of the training of future specialists with the town-forming enterprises.

Initially, it was assumed that a survey in the form of an interview would be conducted with representatives of the employer. In the course of a real conversation, representatives of educational institutions could ask clarifying questions in order to reveal as accurately as possible the needs of production in specialists.

The first problem of interaction is associated with the difficulty of the passage to the town's enterprises for representatives of educational institutions. This is because of the need to prepare a special pass. Or it is impossible at all due to the fact that the enterprises belong to the defense sector. These problems almost exclude the possibility of interviewing employers' representatives in the workplace. It also makes it necessary for employers to travel to the territory of educational institutions, which is not always convenient for various objective reasons.

Most employers were given questionnaires containing questions aimed at revealing the peculiarities of the activities of specialists in a particular field. It was assumed that employers will be able to indicate the competencies necessary for the work of specialists, as well as the elements that make them up.

Another problem arose here.

The basis of modern educational standards is such a concept as ‘competence’. However, until now, even teachers and psychologists have not come to a unified approach to the definition of this concept [8, 9]. Employers do not understand the content of this concept either. For them it closer to the concept of ‘labor functions’, on the basis of which the existing professional standards are built. Therefore, employers could not fill out the questionnaires offered to them due to the many questions that arose.

Some employers say they need young professionals who are able to think independently, creatively and critically. Employers are confident that a college or institute graduate will receive all the necessary

professional knowledge and skills at the workplace. This opinion reduces the effectiveness of interaction between educational institutions and enterprise-employers. Following this logic, the future specialist spends most of his time studying at a college or institute in vain. Such situations once again confirm the need for close effective interaction between educational institutions and the employer in terms of the selection of the content of vocational education. Such effective interaction would make it possible to train highly demanded specialists, and employers do not waste time on their retraining.

The questionnaires were adapted by representatives of educational institutions (Table 1). Employers were asked to indicate what specialists in a particular field have to work with (in our case, an IT specialist). Analyzing the required skills of a specialist, tools, software and technologies with which they will have to work, representatives of educational institutions can draw up new curricula in disciplines or modernize existing ones.

Table 1. Adapted table for employer survey.

Labor functions	Skills	Documents	Equipment Tools Materials	Software products	Technology

Another feature of interaction with employers is the fact that they do not share potential specialists by educational level. It is extremely rare that employers can say that a particular position requires a specialist with a certain level of education. Most often, employers describe the specialist and his labor functions as a whole, without specifying – it must be a middle-level specialist or a person with higher education.

That is, the employer, as a rule, says in general what a specialist must be able to work with for successful work at their enterprise. The task of representatives of educational institutions is to correlate the information received about the skills of a specialist by levels of education. This can be done, inter alia, with the help of existing professional standards, in which labor functions are divided according to the level of education of specialists.

Of course, these are not all the problems that arise in the interaction of educational institutions and employers [10–14]. Here we considered those of them that arose in the selection of the content of education.

3. Conclusion

As part of the survey of employers, it was possible to modernize the curricula and curriculum of the college in the direction of training ‘Programming in computer systems’, ‘Computer systems and complexes’, to modernize the content of training bachelors in the direction of training ‘Applied Informatics’ and ‘Information systems and technologies’ also to develop a new program for training masters – ‘Applied Informatics’, aimed at training IT specialists for Nizhny Tagil′ industrial enterprises. This master's program includes three educational trajectories: ‘Digital technologies in foundry’, ‘Digital technologies in mechanical engineering’, ‘Digital technologies in heat power engineering’.

On the one hand, employers are interested in graduates of higher and secondary vocational education institutions. They are especially interested in employees who are able to think independently and solve various problems, have critical and creative thinking. On the other hand, the process of interaction between representatives of educational institutions and employers is complicated by various, including objective, reasons. Any information received from employers should be analyzed and synthesized by representatives of educational institutions. Survey data should be differentiated according to training levels (according to professional standards), distributed according to relevant competencies.

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