The Role of the Regional Support of Technical University in the Training of Professional Personnel for Enterprises of Volgograd region

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Abstract. The article is devoted to assessing the role of the basic technical university in the training of professional production personnel for enterprises of the Volgograd region. The university acts as a communication platform for the implementation of constructive interaction with representatives of business, government, science, education, the public, being the initiator of holding negotiations, meetings, conferences, congresses, symposia at its base.

1. Introduction

Volgograd State Technical University (VSTU) is a supporting technical University with a promising educational infrastructure (scientific and technical library, multimedia classrooms, laboratories with modern equipment).

The role of the supporting University in the region is determined by its target model: to provide advanced training of highly qualified specialists in demand in all spheres of economic activity of the region: design engineers, technologists, economists of production and construction sectors of the economy, builders, programmers, architects, specialists for the branches of engineering, metallurgy, chemical industry, defense industry, housing and communal services, transport. Training for the most part of these specialties, as well as the formation of a number of professional competencies in the region is carried out only in the VSTU. Notably, this group includes even those UGSN (the enlarged groups of specialties and areas of study), which are implemented by other universities in the region. In particular, training specialists in the field of economics and management (UGSN group 38.00.00) is conducted in all educational institutions of the region, but specialists in this field for industrial enterprises (metallurgy, engineering, chemical industry, construction) are prepared only in the Volgograd State University. In addition to training specialists in the basic educational programs of Higher Education, the University provides training of middle managers (technicians, technicians, technologists), retraining and advanced training of specialists and managers of enterprises and organisations in the region, conducts vocational training.

For the regional support University, there are several characteristic areas of training, in which the share of the reduced contingent of students from the total number of students enrolled in the region is more or close to 50%: aviation and rocket and space technology – 100%; weapons and weapons systems – 100%; geology, exploration and development of minerals – 100%; architecture and construction 87.4%; chemical technology and biotechnology -78%; metallurgy, mechanical engineering and material processing – 70%; vehicles – 65%; automation and control – 60%.%; technology of food products and consumer goods – 52%; computer science and technology – 48%; life safety, environmental management and environmental protection – 45%.

The University performs a large amount of applied research in scientific and technical areas for enterprises in the real sector, implements scientific and technological educational chain of "VSTU – VNTK (Volga Science and Technology Complex) – the industrial enterprise", uses the results of research in educational process for development of the corresponding professional competences of
future specialists. VNTK platform allows to attract structural units and small innovative enterprises to the production of competitive high-tech products, solving problems of import substitution, promotion of scientific developments of VSTU to the markets of high-tech products.

The University acts as a communication platform for fruitful interaction with representatives of business, government, science, education, the public, being the initiator of the negotiations, meetings, conferences, congresses, symposiums.

The University participates in the development of regional development programs, as well as orients its development strategy in the field of educational and scientific activities under the key areas of development of the region. The University updates its portfolio of educational and scientific products in accordance with the selected program of development of the region segments of key sectors of the economy. These segments include: metallurgical production (production of finished metal products); production of building materials (production of concrete and gypsum products); food industry (conservation and processing of vegetables, production of animal feed production of vegetable oil and fats); production of machinery and equipment (oil and gas equipment, buses, electrical equipment); chemical production (production of rubber products and plastic products); production of petroleum products; transport and communication; production, transmission and distribution of thermal energy; mining [1].

2. Analysis of the results of training of professional personnel for the region

At the moment, the VSTU is a leader in the field of science "Engineering, technology and technical sciences", preparing 75% of the total number of students in this industry in the region.

The structure of demand for educational services determines the development of industrial, construction, agricultural and transport complexes of the Volgograd region. One of the largest consumers of specialists is LLC "EuroChem-Volgakaliy", implementing a project related to the creation of mining and processing plant for the extraction and enrichment of potassium salts.

Table 1. The employment of graduates of VSTU [2]

| Year | Number of graduates (pers.) | Employed graduates of the Russian Federation (pers.) | Share of employed graduates (%) | Employed graduates in Volgograd region (pers.) | Employment in Volgograd region / employment of graduates in the Russian Federation (%) |
|------|--------------------------|-----------------------------------------------|--------------------------------|-----------------------------------------------|------------------------------------------------|
| 2014 | 2521                     | 2000                                          | 79                             | 1 382                                         | 69.1                                           |
| 2015 | 3873                     | 2987                                          | 77                             | 1 883                                         | 63.0                                           |
| 2016 | 1861                     | 1503                                          | 81                             | 894                                           | 59.5                                           |

Based on the table data (see table 1), in 2014 the number of graduates was 2521, of which 79% were employed, which is 2000 people, 1382 of which are employed in Volgograd region (69.1% of all employed graduates of the VSTU. The average amount of payments to graduates 24615 RUB. The number of regions where graduates were employed – 39. Of the total number of employed graduates – 1% - individual entrepreneurs, the rest – employees. Experts of the project "Social Navigator" identified Russian universities, graduates of which are most in demand by future employers, as well as ranked educational institutions according to the criteria of orientation to the real sector of the economy, the demand for scientific works and many others ("Ranking of demand for universities in Russia-2015" - the project " Sociological research of the labour market). Among 140 technical Russian universities, VSTU is on the 59th place [3, 4].

In 2015, the number of graduates amounted to 3873, of which 77% are employed, which is 2987 people, 1883 of which are employed in Volgograd region (63% of all employed graduates of VSTU. The average amount of payments to graduates - 26559 RUB. The number of regions where graduates were employed – 48. Of the total number of employed graduates – 2% - individual entrepreneurs, the rest - employees.
In 2016, the number of graduates amounted to 1861, of which 81% are employed, which is 1503 people, 894 of whom are employed in Volgograd region (59.5% of all employed are graduates of the VSTU. The average amount of payments to graduates 27893 RUB. The number of regions in which graduates are employed – 41. Of the total number of employed graduates – 3% - individual entrepreneurs, the rest - employees. Experts of the project "Social Navigator" identified Russian universities, graduates of which are most in demand by future employers, as well as ranked educational institutions according to the criteria of orientation to the real sector of the economy, the demand for scientific works and many others ("Ranking of demand for universities in RF2016 "– the project" Social Navigator "MIA "Russia today"). Among 132 Russian technical universities, VSTU – 65 places [5, 6].

The General analysis of table 1 allows to draw a conclusion that the majority of students of Volgograd Regional Support Technical University is employed, that proves their demand in the labour market, and also shows the importance of VSTU in preparation of experts for the enterprises of Volgograd region as the majority of graduates is employed there [7].

3. Analysis of the need for qualified personnel in the region

In order to overcome the imbalance between the labour market and the market of educational services, to provide employers, including those involved in the implementation of investment projects, with employees, it is necessary to carry out a research on the needs of the regional market for qualified specialists [8].

According to a survey conducted by the regional labour Committee of Volgograd region, among 1871 employers of Volgograd region, 320 employers (17.1%) showed zero need for personnel.

The largest number of enterprises from the number of respondents has no need for personnel for a seven-year period in the following municipal districts and urban districts of Volgograd region as: Novonikolaevsky district – 63.9%; Nehaevsky district – 57.1%; Oktyabrsky district – 50.9%; Alekseevsky district – 41.2%; Dubovsky district – 39.3%; Mikhailovka-36.3%.

In 11 municipal districts and urban districts of Volgograd region there is no need for personnel from 1.7% to 7.6% of enterprises depending on the number of respondents.

In 7 municipal districts and urban districts of Volgograd region all surveyed enterprises indicated the need for personnel.

As a result of the work carried out, the need for 17.1 thousand skilled workers with higher education for 2017-2023 has been identified (figure 1).

![Figure 2. Distribution of demand for qualified workers and specialists by level of education, 2017 – 2023](image)

Specialists with Higher Education are most in demand in the following types of economic activities:
- economy and management - 5,0 thousand people (66,4% of the total demand by type of economic activity);
- education and science - 3.5 thousand people (63.4% of the total need for the type of economic activity);
- health and social services - 2.9 thousand people (57.0% of the total need for the type of economic activity).
The lowest need for specialists with Higher Education is noted in the following areas:
- provision of public, social and personal services - 14 people (0.7% of the total need for the type of economic activity);
- light industry and chemical production – respectively 67 and 89 people (4.1 and 5.2% of the total need for the type of economic activity).

The need for specialists with Higher Education is completely absent in the production of building materials, vehicles, as well as wholesale and retail trade.

The most popular specialties of Higher Professional Education level are presented in table 2.

| Name                                      | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | In total |
|-------------------------------------------|------|------|------|------|------|------|------|---------|
| commodity researcher                      | 359  | 378  | 388  | 408  | 428  | 459  | 475  | 2895    |
| educator                                  | 224  | 197  | 195  | 196  | 200  | 198  | 196  | 1406    |
| doctor (general medicine)                 | 113  | 92   | 97   | 91   | 83   | 83   | 83   | 642     |
| technologist of production and organisation of public catering | 81   | 82   | 81   | 75   | 78   | 78   | 77   | 552     |
| agronomist                                | 84   | 75   | 76   | 60   | 64   | 66   | 65   | 490     |
| builder                                   | 59   | 53   | 53   | 53   | 147  | 57   | 54   | 476     |
| economist                                 | 71   | 61   | 59   | 61   | 60   | 58   | 57   | 427     |
| social worker                             | 55   | 54   | 55   | 54   | 53   | 53   | 53   | 377     |
| therapist                                 | 73   | 43   | 47   | 43   | 44   | 42   | 45   | 337     |
| Mathematics teacher                       | 55   | 47   | 40   | 51   | 39   | 43   | 39   | 314     |

Based on the data presented in table 2, we can conclude that the most popular specialists, who are trained by the VSTU will be: product technology and catering (total need 552 specialists), as well as economists (427 specialists).

4. Conclusions
The formation of the Regional Support University of engineering profile is necessary for advanced training of highly qualified specialists (design engineers, technologists, economists of industrial and construction enterprises, builders, programmers, architects), which creates staffing for the growth of industrial production, construction, reconstruction of housing and communal services, road network and transport [9, 10]. In addition, the Regional Support University will provide a large amount of applied research in natural science and technology areas, demanded by enterprises of the real sector. The possibility of obtaining high-quality and practice-oriented education allows to prevent the leakage of labour and intellectual resources and, moreover, to attract such resources from other regions of the Russian Federation and from abroad.

Volgograd Support Technical University produces highly qualified specialists in demand in all spheres of economic activity of the region: design engineers, technologists, economists of the production and construction sectors of the economy, builders, programmers, architects, specialists for the branches of mechanical engineering, metallurgy, chemical industry, defense industry, housing and communal services, transport [11, 12]. Now, the percentage of employment of VSTU graduates is high and is more than 70-80% for each year of graduation. More than 60 % of employed graduates stay to work in Volgograd region. This fact demonstrates the attractiveness of the region as an employer and the most important role of VSTU in providing new highly qualified specialists of Volgograd region.

5. Recommendations
The development of the Regional Support University will allow the region to create a unique combination of educational programs and research areas that ensure the development of the main elements of the socio-economic system of Volgograd region.

To achieve this strategic goal, the following tasks are planned:

- modernisation of implemented and development of new flexible project-oriented educational programs for bachelors and specialists;
- development and implementation of new programs for training masters and teaching staff in post-graduate school, combining the educational process with the solution of research, design and production and technological problems;
- development of the network of basic departments of the University and training of specialists on target order in the territory of industrial partners and power structures;
- inclusion of distance learning and open online courses in the organisation and content of the educational process of the University;
- diversification of the portfolio of Higher Education services in the direction of specialties with a high level of demand;
- creation of more effective programs for employment of graduates and cooperation with organisations of the region.

Due to the diversity of its functions, the Regional Support Technical University is the most important link in the socio-economic system of the region. Special attention should be paid to the Regional Support University's effective interaction with stakeholders - consumers and customers of educational services, federal, regional and municipal authorities with the regional community [13]. Together with the main subjects of regional labour markets, the leadership of the Regional Support University needs to develop and implement programs of target (profile) training in the field of Higher and Postgraduate Education, training and retraining of various categories of specialists and managers on the basis of the introduction of annual monitoring of the need for qualified personnel in Volgograd region.

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