

Formation of the educational component in the innovative infrastructure of the region in the era of digitalization

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Abstract. The article presents and evaluates various approaches to the development of the innovative infrastructure of the region in the era of digitalization, examines the essence of educational innovations, the socio-pedagogical expediency of innovative changes in higher education, and didactic aspects of innovatization considering the digital education principles. The emphasis is placed on an insufficiently studied aspect: the development of a didactic base to prepare human resources for the regional economy development. On the example of TyumSU, the meaningful interaction between educational units of universities and enterprises of the region, the interrelation of innovative, scientific, educational, and scientific-methodological aspects that allow implementing the tasks of the Tyumen region within the framework of socio-economic policy, foreign economic and international interaction of the region with the external environment, including with the EAEU countries, is shown. The article presents an interactive dictionary of the customs sphere as a specific tool for preparing a university graduate to effectively solve practical problems in professional activity, a means of systematizing knowledge in customs. The use of modern technologies to create a digital product that meets the needs of cooperation at the interregional and interstate level is considered.

1 Introduction

Relevance of the research topic. In the modern period of the development of states, it is obvious that the connection between countries is more often established in the fields of science and technology. In the modern period of globalization, the problems of resources, as well as internationalization, increased competition, gaining growth in the introduction of effective innovations in education. Integration of interstate relations is important not only in the sphere of economic cooperation, but also in education and science. The formation of a regional innovation subsystem of the region's infrastructure is determined by the presence of highly professional specialists, the degree of their adaptation in the external and internal environment, and the ability to apply the acquired knowledge. The educational innovation infrastructure of the region is represented by scientific, educational organizations, various regional departments for innovative development, business, and the local community. In a

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difficult, sanctioned time, the educational innovation infrastructure should be reformed, according to the external conditions of the environment, by an integrated approach to the region development within the framework of the activities of states.

2. Materials and Methods

The theoretical significance of the work: consists in identifying the development features of the current stage of regional socio-economic development. Using the example of the educational component formation in the innovative infrastructure of the region in digitalization era, new approaches in this field of research are proposed.

Practical significance: research in this area and conclusions can be used in further research in the field of innovation in education, as well as in the preparation and implementation of various plans aimed at improving the educational innovation infrastructure of the region.

The purpose of the study: the formation of the educational innovation component of the region's infrastructure in digitalization era, in the context of the integration spatial structures of the EAEU country, identification of the digital pedagogics role in higher education (on the example of Tyumen State University) in the context of sustainable socio-economic development of the region.

Research methods. The article uses the following methodological principles as structural and functional analysis, the method of expert assessments, system analysis, objectivity and consistency of presentation of theoretical and practical research material methodology of modern discourse analysis, linguistic, descriptive and analytical method, method of lexicographic modeling. Exploring the formation of the educational innovation infrastructure of the region in digitalization era. It should be noted that innovative development in education is becoming one of the most important elements in the socio-economic improvement of regions.

In most studies devoted to innovations in education, the emphasis is placed on the problem of evaluating the innovation infrastructure effectiveness, while the practical approach and improvement methods remain insufficiently researched. In domestic works, several interpretations of the concept of "educational innovation structure of the region" are presented. Studies of these problems are reflected in the works of foreign scientists (Camagni, R. Cooke, P.N. Cous, R. Freeman, C. Lockwood, D.). As practice shows, the need to evaluate and predict the results of innovation in education, as well as in many other systems, caused the emergence of the "innovative development" concept. According to E. Toffler's definition, the former systems of "power" and "power of money" give way to "power of knowledge" [1]. In the works of Russian scientists [2, 3, 4, 5, 6] general theoretical, local studies of regional innovations and innovation infrastructure dominate. Attention is focused on the organizational and functional structure of the university.

In most studies, attention is paid to the problem of evaluating the innovation infrastructure effectiveness, but the practical approach and methodology for improvement remains insufficiently researched. There are several interpretations of the concept of "educational innovation structure of the region" among Russian scientists. We emphasize that the Russian regions are quite heterogeneous in terms of the digitalization potential development. According to S. Zemtsov, at present [7] the economic situation determines new requirements for intellectual capital, professional competencies, the introduction of digital technologies in new and traditional fields of education, and therefore the education digitalization and innovatization becomes an important component of the development of the innovative infrastructure of the region. Speaking about the increasing demands on scientific knowledge and its implementation in practice, T.V. Timofeeva offers a vivid analogy with the "knowledge arms race" [8], which regional universities are actively entering, designed to bring education to an innovative level.

It is worth noting that "the increasing role of human capital as the main factor of sustainable socio-economic development is due to the fact that the level of competitiveness of the modern economy is increasingly determined by the quality of professional personnel, the degree of their socialization, creativity" [9, p. 56]. Studies devoted to the comprehensive study of human capital [10, 11] have shown that it "is formed mainly in the education and science sector and creates not only cultural values of the population, but also provides conditions for the transformation of the technological basis and knowledge flows into the real sector of the economy" [12, 13].

Based on the analysis of current publications on the innovative education problem, it can be concluded that the influence of Russian universities on the development of regions can be much more significant, namely, more targeted, topically, and more effectively stimulate the activities of the region and form a request for training specialists and ongoing research [8, p. 24].

E.F. Zeer interprets innovative activity in education as "pedagogical activity aimed at the practical implementation of the results of completed scientific researches and developments, other scientific and technical achievements, as well as the transformation of intellectual property objects into a new or improved pedagogical product, into a new or improved educational process" [14, p. 5]. According to V.I. Zagvyazinsky, in general, the innovation process is "the process of improving educational practices, the development of educational systems based on innovations, or, more precisely, on the basis of enrichment, modification of these systems based on innovative development and partial changes in traditional goals, content, and means of education" [15, p. 12], and innovative education in a broad sense is an integrated approach within the framework of methodological innovation, including the following components: economic, social, managerial, environmental, and other aspects.

Universities face the need to determine the prospects for the development of the training direction, the choice of appropriate methods, teaching technologies, the development of materials and tools that allow graduates not only to navigate well in their subsequent professional activities, but also to solve practical tasks as efficiently as possible.

In the field of education, two trends have been observed recently: on the one hand, universities interested in employing graduates actively cooperate with employers, adapting training programs to the needs of specific enterprises and organizations, on the other hand, in the interests, first of all, of students, they seek to cultivate specialists who, thanks to the acquired professional and general professional competencies, will be able to adapt to any working conditions without difficulty and will not be limited in employment by their highly specialized knowledge. In the context of globalization, the qualifications, the need for continuous training becomes a guarantee of mobility and professionalism. Therefore, "universities are intensifying the search and application in practice of innovative and effective technologies for training their graduates, striving to ensure their competitiveness in the labor market, while interacting not only with large, but also with small enterprises, state corporations, and private business" [16, p. 60]. Qualified and experienced employer representatives are directly involved in the training of graduates. As a result of continuous monitoring of feedback from regional stakeholders, the university adjusts the structural and functional indicators of its educational environment.

In the era of sanctions policy, employers expect graduates to be ready for retraining and the ability to adapt to changing conditions in the labor market, and "new generations of specialists are waiting for a new quality of the working environment, the use of new technologies and the availability of innovative social practices that promote self-realization in the workplace, the development of talent, career aspirations, maintaining a balance between work and personal life" [17, P. 106].

In our opinion, the socio-pedagogical expediency of innovative changes in higher education should be determined by the compliance of vocational education goals with the

social order, when as a result of training employers receive the necessary specialist with hard skills and soft skills, and graduates have all the necessary tools to solve problems in real professional situations.

Of great importance is the organization of industrial practices in higher educational institutions on a permanent basis. Specialists in the field of educational innovations associate the changes taking place in the educational process "with new technical and information technologies that create convenience for academic work, open up new opportunities for obtaining and processing the necessary information, contribute to the formation of certain competencies, primarily digital ones" [18, p. 151].

As an example of the interaction of the educational process and industrial practice, consider the specialty "Customs" at the Tyumen State University. TyumSU not only plans and conducts sociological and economic research by the University to increase the efficiency of innovation processes in the Tyumen region, but also actively cooperates with enterprises and structures within the region. Among the numerous aspects of such interaction, an important place is occupied by the provision of practice-oriented training of students. As an example of network cooperation implementation, it is possible to cite the educational and industrial practice of students of all courses of the specialty "Customs", which, in accordance with the curriculum, are held in:

- divisions of the Customs Service of the Russian Federation: the Federal Customs Service (FCS); regional customs administrations (RCA), in particular, the Ural Customs Administration (UCA), customs of the Tyumen Region and other regions of Russia; customs stations;
- organizations subordinate to the Federal Customs Service of Russia;
- divisions of the customs service of other countries;
- commercial organizations engaged in foreign economic activity;
- credit and financial institutions of the Russian Federation engaged in foreign trade turnover;
- state structures involved in international economic relations;
- federal, regional, and local government bodies related to foreign economic activity;
- other organizations related to export-import operations in the field of economics;
- the Bailiff Service.

Within the framework of practical training in the specialty "Customs", students study: organizational structure of the Federal Customs Service of the Russian Federation; legal regulation of the activities of customs authorities (enterprises); information security; organizational structure of the legal and economic services of customs (enterprises), main goals and objectives of their activities; work of customs departments; work with primary, consolidated, and accounting documents of the structural unit; maintenance of customs statistics; regulations of the customs (enterprise), standard forms of civil contracts and other documents of an economic and legal nature. The practice content provides the study of methodological, instructional, and regulatory materials, fundamental and specialized literature, as well as the collection, systematization, and generalization of practical material, allows students to get acquainted with the peculiarities of the work of various services and organizations, to participate in the real solution of a wide range of issues arising between the structural units of customs (with the consent and under the direction of the head of the department).

As noted above, in recent years, "the thesis of the need to consider the interests and needs of employers of future graduates in the implementation of the educational process has been actively promoted in the university environment" [16., p. 56]. Thus, TyumSU acts as a link between three areas: scientific and educational, interregional and entrepreneurial, and teachers, using digital innovative approaches, develop a didactic base to prepare human resources for the regional economy development.

3 Results and Discussion

To provide personnel for a number of sectors of the economy and subsystems of the social sphere of our region, Tyumen universities actively participate in the formation of intellectual capital and educational component in the innovative regional environment. This ensures the interconnection of innovative, scientific, educational and scientific-methodological aspects, which makes it possible to implement the tasks of the Tyumen Region within the framework of socio-economic policy and to implement the functions of foreign economic and international interaction of the region with the external environment, including with the countries of the new Eurasian Economic Union (EAEU) created in 2018.

TyumenSU, like many others universities "rethink the learning process, replenish the educational environment with digital technologies, methods, and resources. A new digital didactics is being formed and developed, which allows for the rapid implementation of an integrative competence-based approach to learning and the formation of professional competencies and readiness for professional activity" [19, p. 1]. An annotated bibliographic index on the higher education digitalization for 2020-2021 [20] can be found in the collection prepared by the staff of the scientific library of Chelyabinsk State University. This index includes and systematizes various documents of a regulatory, legal, and methodological nature, revealing the topic of education digitalization in universities. The formation of the educational innovation infrastructure of the region in the digitalization era is based on the increment of knowledge [21, 22, 23]. Independently, it will not bring any effect if it is not implemented - with the help of innovations and investments in fundamentally new or improved technological processes. An integrated approach of an innovative structure in education is needed: from a scientific idea, its implementation to its practical application and teaching to students. An example of such a smooth transition "idea – product – practice" is the interactive dictionary of the customs sphere under development.

TyumenSU acts as a link between three areas: scientific and educational, interregional and entrepreneurial. Teachers, using digital innovative approaches, develop a didactic base to prepare human resources for the development of the regional economy, in particular in the customs sphere.

As a digital product, which has a high innovative potential, can be used for teaching and training students of the Department of Customs Affairs, teachers of the Tyumen State University plan to create an electronic multilingual dictionary of the customs sphere, which includes foreign language equivalents in the languages of the EAEU countries (Belarusian, Armenian, Kyrgyz, Kazakh). The choice of languages is due to the fact that in the process of integration interaction of the Customs Union countries (Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia), professional communication is carried out in Russian. The relevance of the study is beyond doubt. The market of dictionaries on customs topics within the framework of the EAEU languages is represented by the only Russian-Kyrgyz dictionary "Customs" [24]. There are no other language pairs of the EAEU (Belarusian, Armenian, Kazakh) in dictionaries containing terminological units for professional communication of public services that ensure trade turnover between the countries.

In existing dictionaries with the inclusion of other languages (Russian, English, German, etc.), only fragments of the conceptual framework are recorded from the standpoint of the principles and norms formulated in the EAEU, the vocabulary is heterogeneous and included, on the one hand, in terminological dictionaries of other subject areas, on the other hand, it includes lemmas from other subject areas.

Due to its ideographic structure, the planned dictionary can act as a model of the conceptual apparatus of the customs sphere with ordered terminological units. This principle is seen as very important, since "the goals of creating an educational dictionary are: not only to help students find the translation of the desired term, but also to systematize and structure

the semantic components of the professional worldview of the customs sphere" [25, p. 61]. For example, through the developed vocabulary product, it is possible to identify how the terms of microfields interact in the terminology field "Electronic Customs": *information customs technologies, customs control, legal control*. Each microfield may include more fractional micro-groups: electronic preliminary information, interdepartmental electronic interaction, customs administration, forensic tools.

To collect terminological units, the official websites of the customs services of Russia, Armenia, Belarus, Kyrgyzstan, Kazakhstan, the EAEU program documents, regulatory legal acts, scientific articles of industry journals were involved.

The terminology array in the dictionary is represented by "the following thematic areas: customs operations, commodity nomenclature, pricing, prohibitions and restrictions on foreign trade activities, customs payments. The listed groups correspond to the main directions of the EAEU activities, which are reflected in one of the key documents of the EAEU *Strategic Directions for the Development of the Eurasian Economic Integration until 2025*" [25, p. 68]. The innovative component of the dictionary is the terminological field "Electronic methods of customs declaration", which includes the thematic fields of *Information customs technologies, Interdepartmental electronic interaction, Electronic preliminary information*. This is due to the need to apply the "single window" principle in the customs industry.

Cross-references in the dictionary entry in the planned dictionary may indicate synonyms (lay time = regulatory time, customs clearance = legalization of foreign goods), antonyms, generic concepts (declaration - general declaration - general aviation declaration), abbreviations (Unified Commodity Nomenclature of Foreign Economic Activity (Combined nomenclature) = ECNFEA).

The role of reference points in the dictionary is performed not only by cross-references, but also by additional materials designed in the form of QR codes, which corresponds to modern trends in the introduction of augmented reality elements in educational technologies [26, 27]. The presence of QR codes helps to implement the principle of educational product interactivity in the dictionary of customs terms: students follow links to video, audio, online articles or interactive tasks during training offered by the developers. Such elements of solving professional tasks help to form not only subject, but also communicative, meta-subject competencies, including developing ICT competence. The electronic dictionary serves as a so-called "navigator" in the industry term system of customs, presenting specialists with a model of professional communication in the form of a cognitive map. Terminological units presented in a systematic form nominate special concepts that are communicatively significant for the customs sphere of the EAEU.

Thus, an innovative didactic aspect of the educational space of a modern university is being developed, considering the principles of digital pedagogics [28, 29]. Students and teachers in the process of solving professional cases can apply the necessary terminological apparatus, which acts as the basis for the implementation of an integrative competence approach to learning and the formation of professional competencies 1, 7, 12, 15, 16, 32, 35, 36, 37, 38, provided by FSES. Due to the formation of these competencies, students get an idea of communication norm in the professional communication of the customs sphere. On the one hand, it is the direct performance of customs operations by foreign economic activity participant, on the other hand – accompanying activities (analysis and forecasting of customs payments, appointment and use of the results of goods examinations, control of customs declarations, protection of civil rights of foreign economic activity participants).

4 Conclusions

The dictionary currently under development serves to significantly expand the horizons of students and graduates, helps to solve subject problems in related fields of activity, which will contribute to professional growth and mobility of a specialist. The dictionary is an important component of innovative education, because through the use of information and multimedia technologies it provides computer visualization of educational information, and is an integral part of programmed learning.

The lexicographic product is intended for practitioners and students of customs and economic specialties who are interested in various issues of customs issues, as well as linguists-translators.

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