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**STUDENTS' ENTREPRENEURIAL COMPETENCIES - THE
BRIDGE BETWEEN TRADITIONAL AND PROGRESSIVE
HIGHER EDUCATION**

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Abstract

The article analyzes the materials on the students' training in vocational and higher schools aimed at the formation of entrepreneurial competencies. One of the mechanisms for the strategic development is the consolidation and synchronization of scientific research with the needs of the economic sector, including the format of technological consortia and clusters. The article considers the problem of improving a set of measures aimed at developing of technological entrepreneurship. The main research questions in the article are the transformation of technological entrepreneurship into an important direction and a way to implement state policy in the field of education and science. The solution of these questions fills the gap in science and offers a review of the means to solve actual scientific problems. The purpose of the article is to develop a structural-component model for the formation of entrepreneurial competencies of students, young scientists in the field of technological entrepreneurship. The study was conducted among students of Moscow University of finance and law. The study used qualitative research methods: situational analysis, deep interviews and document analysis. The study allowed the authors to do the conclusion: it is important to use different instruments to involve the students in launching a high-tech business. The authors note that high level of forming of entrepreneurial competencies is possible under the realization of interaction of competency, synergetic, resource approaches to the educational process. The authors recommend to use a model given in the article for the interaction of education, science and production.

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1. Introduction

The entrepreneurship is decisive for the modern Russian economy. Many domestic researchers have studied entrepreneurship for decades using the competence approach. Based on a thorough review of the literature, we can conclude that the model for the development of entrepreneurial competencies has not yet been determined. The development of entrepreneurial competencies depends on the basic level of formation of entrepreneurial competence of a specialist. The study suggests that an effective system of students' training in vocational and higher education organizations may lead to the development of a high level of entrepreneurial competence among future professionals. This aspect will be studied further. According to scientists, in order to implement the strategic objectives and obtain the results, it is necessary to develop and introduce the technologies in organizations operating in the real sector of the economy, form a set of measures for the development knowledge-intensive products, taking into account the developments of Russian technologies, with the participation of students and young scientists, develop the mechanisms for the formation of entrepreneurial competencies among the students in educational institutions of higher education (Gedulyanova & Gedulyanov, 2017).

According to the point 28 of the Strategy for the Scientific and Technological Development of the Russian Federation, approved by Decree of the President of the Russian Federation No. 642 dated December 1, 2016 "On the Strategy for the Scientific and Technological Development of the Russian Federation" (further - Strategy) "the aim of the scientific and technological development of the Russian Federation is to ensure the independence and the competitiveness of the country by creating an effective system of building up and using the nation's intellectual potential. "In our opinion, the Strategy is a "breaking line" between traditional and progressive education, which runs through a common educational philosophy and its centuries-old battle for control over educational design methods and ends in business education (Strategy..., 2016). The authors ask the question: how can the entrepreneurial competencies act as cognitive tools that connect the progressive educational perspectives? The supporters of the progressive education emphasize that by forming the entrepreneurial competencies of young professionals, it is possible to simplify a complex, interdisciplinary and the whole learning environment, preserve specific and individual practical aspects in a social learning environment, add more content and linearity to the iterative learning process, promote independent thinking in emotional and action-oriented learning environment (Gedulyanova, Zabelina, Zabelina, & Aldoshina, 2018).

2. Problem Statement

The article discusses the problem of improving a set of measures aimed at developing technological entrepreneurship, pilot sites based on educational organizations and creating a system for exchanging best practices for training scientific personnel. This particular attempt, which can lead to a flexible, but, all the same, based on the criteria of the "third way" to a high level of the higher education system, developing between the conservatism of traditional education and the uncertainty of progressive education.

In 2016, Goncharova and Sheina wrote that the development of innovation policy is based on the basic principles: the revealing of the talented youth; the improved conditions for the conducting and development; the formation of an effective communication system in the field of science. One of the

mechanisms for the strategic development and implementation of the priorities of the Strategy is the consolidation and synchronization of scientific research with the needs of economic sectors, including the format of regional technological consortiums and clusters. The direction of technological entrepreneurship is changing.

3. Research Questions

The study of these problems fills the gap in science and offers a solution of research issues. We suggest considering forms of innovation, tools for involving students to start a knowledge-based business, methodological approaches to solving actual scientific problems. It is assumed that technology entrepreneurship projects will be developed in a single approach and directed within the framework of a unified approach to the development of students' skills and young scientists to interact with investors and integrate the work of innovation infrastructures into economic cooperation processes for the preparation of ambitious world-class projects and the spreading of best practices (Isaev, Isaeva, & Mamatova, 2017).

The expected indicators for the implementation of technology entrepreneurship projects are: the number of students potentially oriented and motivated to be occupied in technological entrepreneurship (universities of certain areas that have agreements on cooperation with scientific organizations); the number of highly-productive working places in innovative infrastructures; the attraction of investments from extra budgetary sources; the number of scientific researches and elaborations performed by young scientists; the increase of the number of the results of intellectual activity; the number of projects that received the investments.

4. Purpose of the Study

The purpose of the research is to develop a structural-component model for the formation of entrepreneurial competencies of students of higher education institutions, young scientists of scientific organizations, for the effective implementation of professional activities in the field of technological entrepreneurship. The educational organizations of higher education form a management, motivation and decision-making system that allows you to transform the organizational culture, allowing you to implement a structural-component model for the formation of entrepreneurial competencies and technological entrepreneurship in general (Zabelin, 2006; Zabelina, 2007). Consider the components of the structural-component model. An important element of the structural-component model is the creation of an innovative infrastructure for the working out and the revision of scientific results jointly with the teams of students and the young scientists to launch a knowledge-intensive business (Karayannis & Grigoroudis, 2016). The fundamental nature of building a model is determined by the strategic goal - the formation of innovative entrepreneurial thinking of students of higher education institutions, young scientists of scientific organizations, contributing to the effective implementation of professional activities in the field of technological entrepreneurship.

Thus, solving the problem of achieving a strategic goal requires identifying the content and mechanisms, forms of innovation and the conditions for the effective formation of entrepreneurial competencies of students in the interaction of education, science and industry. The relationship between entrepreneurial competencies and other designs is a central place of the model. These relations are

considered as three main conceptual tasks: the formation of a competitive sphere of activity, the creation of conditions for the development of organizational capabilities of specialists and improving the complex of measures aimed at ensuring the training of scientific personnel in Russia. Organizational forms of innovation as a component of the structural-functional model are: technological parks techno policies, engineering centers, industrial parks, the strategic alliances, the resource centers, research and educational centers, multi-level models of the information systems, taking into account the peculiarities of the interaction of education, science and production are widespread organizational forms of innovation. (Obrastov, 2016).

The engineering centers, techno parks, business incubators are the possible forms of business support and a platform for the development of entrepreneurial competencies of future specialists and the young scientists, where the production area, production facilities, laboratories, machine parks are usually present (Chasovskikh & Voronov, 2017). The industrial park is a larger site, there are already all the necessary engineering communications, in which you no longer have to pay separately for connection, for example, the electricity. The industrial parks usually do not specialize in technology entrepreneurship projects, there are already people who know what to do and how to do it, but they need a production site. The industrial park is a production. At the same time, the peculiarity is that the industrial park should be located within the city, which saves staff time.

The main way of interaction between educational and scientific organizations and enterprises of the real sector of the economy is the creation of an innovative infrastructure in the form of an optimum site and the structural unit of the scientific organization. A staged approach to working with the students is proposed, which gives a flexible opportunity for self-determination, that is, at each stage the student has the opportunity to decide: to go further along the road of technological entrepreneurship or to make a traditional scientific career. An educational organization within the framework of a joint program with the enterprises of the real sector of the economy identifies and provides admission and attachment to the students' research laboratories (within the framework of academic, graduate and other practices), students most oriented towards the organizing and launch of a knowledge-intensive business. The next component of the structural-component model for the formation of entrepreneurial competencies and technological entrepreneurship is the identified mechanisms for involving students and young scientists in a scientific organization to launch a knowledge-based business: the creation of a joint base department with an educational institution of higher education, opening in the scientific organization of the magistracy, as well as the application of the mechanism of the contract training. Examining the entrepreneurial skills of students, Kopycińska, Bernat and Korpysa (2009) found that the educational organization should ensure the involvement of investors in the technology entrepreneurship project. The trust between the scientific organization, the team and the investor is ensured by the total work, the openness and participation at various stages of preparing a business project. The deductions from the sale of projects can be the basis for the formation of a network of venture funds to support potentially commercially successful projects based on initiative research. The educational organization forms the new ideas, develops the students' entrepreneurial competencies, gradually expanding the scope of training and activities as the students develop new competencies for new formats of interaction with potential federal and regional customers and

guides the young professionals for the further implementation of activities in innovative regional infrastructures.

Thus, the chain of product launch on the market is as follows: an educational organization, with the involvement of university students, transfers its patents to the newly created small innovative enterprise (further - SIE). SIE conducts additional researches and a new result of intellectual activity is created, owned by SIE. SIE creates a project on technological entrepreneurship. That is, the whole process is carried out by a single team of researchers who are the authors of both the initial and the final development. It is assumed that SIE performs two main functions: the engineering centre to bring the scientific research to the test model, the preparation of technological charts, calculations, modeling and certification; the accelerator or business studio - market analysis, the formation of a business model, business plan, common law, accounting support. The expected results: find the point of intersection of demand for the technology (from the investors, the real sector of the economy) and supply from the scientific organizations; prepare a list of educational and scientific organizations with the developed infrastructure (engineering centres, technology parks, small innovative enterprises). Accumulating this information on their own resources, it's necessary to create a mechanism for generating a large number of technological entrepreneurship projects arising from the academic environment. The modeling of the formation of students' entrepreneurial competencies in the interaction of education, science and production is necessary for understanding the groups of competencies that influence entrepreneurial success (Grosemans & Coertjens, 2017).

When the content of the structural-component model is meaningful, it is necessary to take into account two groups of entrepreneurial competencies: competences in the field of human relations and managerial competencies. According to the authors of the article, the first group of entrepreneurial competencies (motivation, leadership, management skills) is necessary for planning business ideas and the launch of a business plan. The second group of competencies can be developed by effective young professionals who will work on the development of technical skills, business planning skills and problem solving. Russian scientists argue that the measurements of entrepreneurial success in the traditional way and the use of subjective measures of success do not have an exact correlation with the costs and time and are represented as stochastic processes. Based on the foregoing, we believe that when developing a structural-component model for the formation of entrepreneurial competencies of students, it is important to consider a synergistic approach. This synergistic approach from the word synergy, meaning an additional "non-linear" positive effect that arises when combining individual parts of the organization. This can be expressed in cost savings, improving the quality, increasing output, developing competencies, expanding the potential. Synergetic is an interdisciplinary direction of science that studies the general patterns of phenomena and processes in complex systems based on their inherent principles of self-organization.

The structural-component model developed by the authors includes a qualitatively new system for assessing the effectiveness of the formation of the entrepreneurial competencies of students: the aim and the objectives, the scientific concept of interdisciplinary methodological approaches, stages, criteria and indicators, the conditions, the prognosis result. According to Chuchalina and Zamyatina (2010), a competency-based approach to planning and implementing educational activities of universities is a result-based approach, which has recently become widespread in Russia and abroad. The entrepreneurial competencies of graduates formed in the process of studying at a university are the result and the readiness

for future successful professional activity in innovative infrastructures. For the competitiveness of graduates who own a certain set of competencies, it is necessary to develop a system of their selection with basing of the requirements of all interested parties - the students' personality, the society, enterprises and business (Rey, Martin, & Castello, 2018). For example, the requirements of employers are specialized for the certain enterprises. The solutions to this problem remain with educational and scientific organizations that are developing a program and intensity the professional component and the mobility of students in higher education institutions and young scientists. Such programs are complemented by a set of proposals from employers, representatives of enterprises in the real sector of the economy – the strategic partners. The resource approach allows us to solve the issues of strategic analysis of the activities of educational and scientific organizations in the formation of entrepreneurial competencies of students and young scientists and pays great attention to the resources and competencies specific to organizations in the context of their competitive environment. The main stages of the structural-component model are creative-theoretical, creative-practical and analytical. The predicted result of the creation and implementation of the structural-component model of the formation of entrepreneurial competencies of students in the interaction of education, science and production is a reference point for basic and systemic innovations and improving the dynamics of the implementation of technological entrepreneurship projects.

5. Research Methods

The study was conducted among students of Moscow University of finance and law MFUA. Participants were determined using a targeted sample. The study used qualitative research methods: situational analysis, in-depth interviews and document analysis.

6. Findings

The analysis confirmed the advisability of the study of technological entrepreneurship. In recent years competence-based, synergistic approaches have become an increasingly popular means of studying entrepreneurial characteristics and significant links between entrepreneurial competencies and the effectiveness of training specialists, as reflected in empirical researches. It is planned within the framework of the study to conduct a sample survey, factor analysis, the reliability analysis and the discriminating analysis for empirical evidence of the formation of a high level of students' entrepreneurial competencies in the next step.

7. Conclusion

As a result of the discussion of this problem, it was determined that to ensure the formation of students' entrepreneurial competencies and the implementation of technological entrepreneurship, it is necessary: implementation of measures to improve state support for technological entrepreneurship; creation of the pilot sites on the basis of the educational organizations; creation of the mechanisms for the development of communication between the scientific and business community, the integration of the research agenda of the scientific organizations and the universities with the technological business agenda; consolidation and synchronization of the scientific researches with the needs of economic sectors, including the format of regional technological consortia and clusters for the development of technological

entrepreneurship; creation of a system for the exchange of best practices in the preparation of innovative technological and scientific personnel among leading educational and research organizations; support for renovating of the instrumental park of the educational organizations and science in general, the development of a scientific infrastructure for staffing development of a modern economy.

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