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**STUDENT SELF-FULFILLMENT AT ENTERPRISES AS
ACTIVATING FACTOR OF HIGH-TECH ECONOMIC SECTOR**

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Abstract

The humanitarian aspects of activity of small innovative enterprises for high-tech sector established on university base are considered. The authors reveal essence of students' self-fulfillment in work of these enterprises, and also the main psychological trends of self-fulfillment, such as: a personal involvement into high-tech activity, realization of internal capacities and potential, social cooperation into scientific work and innovation projects. The human-focused model of small business development in university infrastructure combines two levels of activity: subjective and imperative. The first level reveals the attributive manifestations of students' self-fulfillment, the second level is constructed above it and contains the implementation regulations of innovative entrepreneurship, realizing these signs. The presented model provides the main psychological trends of students' self-fulfillment by inculcating of the humanitarian standards of using high-tech technologies in the entrepreneurial activity of the university. Such approach to the development of a culture of small innovative business in the university environment provides more fully integration of scientific, highly technical, commercial and educational practices. Students receive not only knowledge, but also the experience of innovative entrepreneurship; they become developers and implementers of various know-how the field of high-tech business, which significantly enriches their personality and allows them to successfully advance in their future profession and career.

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Keywords: Small innovative enterprise; high-tech business; trends of students' self-fulfillment; human-focused model of small innovative business.



1. Introduction

In the current period, among the important areas of modernization of the domestic economy is the formation of a favorable innovation climate based on the creation of small innovative enterprises in Russian universities (in accordance with the Federal Law of 02.08.2009 № 217-FZ). This type of enterprise being a successful tool for combining the university scientific-practical and educational component and innovative business has a number of important advantages. Among the main advantages is the ability to quickly transform an intelligent-scientific solution into a result of technical practice in the high-tech sphere. At the same time, the successfulness of a small innovative enterprise (SIE), operating on the basis of the university infrastructure, depends on its willingness to create jobs for students, to give them the chance to realize their professional qualities as future specialists, to acquire the skills of practical innovation work in high-tech business.

By the nature of its activities, SIE works on the creation and implementation of various innovative technologies and products and acts as a bridge linking science and the economy. Small businesses often take the risk of promoting new products and technologies, are on the path of converting knowledge into goods (Barnett, 2011).

An essential feature of innovation business lies in the fact that its sphere of activity presupposes mandatory self-realization of employees. This feature is determined by the product of these enterprises, which are innovations (Barnett, 2000). It's no secret that at a psychological level, innovations are tightly related to self-realization, as new ideas, solutions and know-how are born in the minds of people, depend on their desires, creativity and ability to implement it (Bok, 2004). Innovations in the high-tech sphere of business are an inevitable consequence of the work of the person, who realizes his skills, knowledge, talent, experience and himself in solving a unique scientific, technical and economic problem. Innovations and production of various high technologies are inconceivable without self-realization of their creators, otherwise the work boils down to a schematic, ordinary, reproductive process of repeating the finished samples and models.

In the social and professional dimension, a successful SIE is a team of creative employees, each of whom participates in working-out of new ideas and projects, develops as a professional and skilled specialist, his personal potential (Clegg, 2003).

Thus, the readiness and the possibility of full-fledged creative self-fulfillment is the basis of innovative activity, its internal source and driving force (Conley, 2005). In this regard, the self-fulfillment of students as potential and successful employees is an important value in the work of small innovative enterprises at the university, requires the organization and maintenance of favorable conditions.

Meanwhile, often in practice, the activity of small enterprises at universities is dominated by a commercial-fiscal approach, when the first goal is to achieve profit and raise the salaries of employees. In these case, the efforts of SIE, as a rule, is reduced to copying and distribution of an already ready innovative product and technology, but the search-heuristic and high-tech work recedes into the background, or even ends. As a result, SIE in the university functions like a commercial implant, which belittles the meaning and purpose of the innovative enterprises in university. However, it should be noted that, the value of the commercial aspect of SIE activity should not be overlooked because it serves as a criterion for their success on the modern know-how market. In this regard, in each case, it is foremost to

maintain a balance between of commercial, innovative and scientific components in the opening of the university innovative enterprise especially at the primary stages of its business activity (Doroshenko et al, 2015). It is important to keep in mind that, the supporting of this balance may be based on the value of self-realization of the SIE employees as guarantees of their creative and non-trivial attitude to business..

2. Problem Statement

The possibility of the self-fulfillment in the innovative work of small enterprises for the students as for the future effective specialists plays an essential role in the formation of the professionally important qualities and for growth of their competitiveness in a tough labour market. In this regard, the SIE, functioning at universities, supplements the professional training process perfectly, filling the gap between the students' scientific knowledge and their practical experience (Doroshenko et al, 2016).

3. Research Questions

Underreporting and ignoring of the role of students' self-realization lead in a best case to repudiation of SIE from the university tradition, when SIE essentially turns into a "alien body" and goes beyond the sphere of the university system. In the worst case, the loss of value of students' self-realization leads to a decrease of the innovative activity due to the inevitable reduction of innovative motivation and the desire of the employees to innovative and heuristic work. The assertion of the role and value of students' self-fulfillment testifies to the existence of a high humanitarian level of SIE activities, its viability as the harmonious structure serving not only to the commercial interests, but also to educational and personally significant aims (Denson & Zhang, 2010).

4. Purpose of the Study

A study of methodological approaches to the problem of self-realization of students in the work of the small innovative enterprises as a factor of activation of the high-tech sector of the Russian economy. Students' self-fulfillment as a psychological factor of university SIE successfulness and high-tech industry. The SIE in universities are the important tools not only of the economy modernization, but also of improvement the effectiveness of student learning. These enterprises contribute to the formation of a modern intellectual elite; involve students youth into business, play a significant role in the implementation of university innovations in an area of high technologies.

5. Research Methods

The research conception and methodological patterning features. Within the framework of the research carried out by the authors, they proceeded from the assumption that the process of education must provide human significant conditions for the development of the internal forces of students, their creative and intellectual resources in innovative projects in the field of high technologies. There is no doubt that a successful university should support student initiatives through inviting proposals for interesting and promising researches in the sphere of advanced technologies. Students' process of self-

fulfilment depends largely on the university practice focusing on the full development of the personality as the most important task and value of the higher education (Drucker, 2007). At the psychological level, the self-fulfillment need as the leading life intention at the student age is implied by amore fundamental and more extensive state, reflected in the tendency of self-determination and self-identity (Gewirth, 1998). Considering the students' self-fulfilment process in the university education, we believe that this process represents, on the one hand, as the main growth line of the future specialist personality, one's successful development and self-determination. On the other hand, it acts as an internal indicator of university training effectiveness.

The object of the study, which we conducted, was the innovative and entrepreneurial activity of the higher school as a sphere of student youth's self-fulfillment. The main *problem* of the study was the determination of subjective significant conditions for students' self-fulfillment at small innovative enterprises established on the university base and appraisal of the presence of these moments and the degree of their completeness in the life of modern university youth.

Methods and participants of the study.

As the main methods of collecting and obtaining statistical data, the authors used a complex of methods of questioning. To identify objective quantitative information, the authors conducted a questionnaire survey of students of the humanitarian and technological university of Belgorod (N=220 subjects). The objectives of the survey were to determine the professional expectations and standpoint of students, as well as to provide self-fulfillment opportunities at the university, studying the dominant meanings of the work in a small enterprises.

In order to verify the data and form the relevant picture, the authors conducted an expert survey (N=60). As experts, they have attracted faculty and business professionals of innovative structures.

Research approach. The specificity of the university SIE is their close relationship with the scientific-research activities of universities, their industrial and innovative clusters (a part of which they are) (Gorfinkel, 2011). The more scientific and industrial potential of the university is, the more opportunities for the development of the SIE there are, as well as for an individual level - more chances for the self-realization of the teaching staff, students, researchers, graduate students.

Many authors note that the success of a modern university in the increasingly competitive world market for educational services is largely determined by the achievement of a strong link between personal, scientific and entrepreneurial aspects of university training (Guile & Griffiths, 2001), ensuring the integrity of the educational, research and production fields of the university (Knight et al, 2003). The development of SIE in universities is an effective way to ensure the unity of scientific developments and innovation. Moreover, the field of scientific work is the central line of SIE's activity, creating innovations. Participation of students in this field is of key importance for their self-realization as future professionals and competitive specialists. It is known that the sense of innovation and the deep experience of self-knowledge are born only on the basis of scientific work, at the intersection of fundamental knowledges and generalized methods of thinking and heuristic activity (Maslow, 1987).

6. Findings

Involvement in scientific work as a resource of students' readiness for high-tech activities in SIE based on university. Analysis of the existing educational practice has shown that the effective functioning of SIE at the university requires the stimulation of scientific and research activities of students, the development of a whole set of different forms, types and methods of intra-university work that encompasses the practice of preparing students as subjects of scientific research, heuristic activity. At the humanitarian level, it is necessary to personalize scientific activity, which must be ensured by the following conditions:

- the university has a research and experimental infrastructure, scientific schools and directions;
- implementation of scientific research by teaching staff;
- personal adherence of students to academic professors as scientific advisers and managers;
- the formation of various scientific communities of students (academic and problem groups, laboratories, circles, sections, etc.);
- conducting special studies on mastering the methodology and practice of high-tech research;
- implementation of scientific and practical experimental work by students as employees and laboratory assistants in design bureaus, departments, etc.;
- the realization of the regular student scientific conferences, round tables with participation of the leading scientists, specialists having an opportunity to publish students' works;
- versatile support (including financial assistance) of research initiatives of students and their achievements, promoting the image of a successful student as a successful scientist.

A combination of conditions and various forms of involving students in research work can be supplemented. At present, of course, every university in the country has its own valuable experience and traditions of such work. It is vitally important that this experience be personified and has a real practical solution so that each student can develop his personal experience in solving scientific and practical tasks.

The human-focused design of the scientific research sphere at the university as the space of students' self-fulfillment can serve as nutrient soil for substantial support of their work as motivated and trained employees of the SIE.

The psychological trends of students' self-fulfillment in the SIE activity. It is known that the existing system of education in higher school does not always - if at all - provide opportunities for self-fulfillment of all students. The streaming character of the training, the well-known unification and standardization of ways and methods of working with students not only allows everyone to fully disclose one's abilities and talents, engage one's personal potential (Roger, 2004). Moreover, providing students with jobs for their practical training as the professionals is not included in the problems of education (Knight et al, 2003). Also, not all universities can provide the necessary conditions for self-realization, often they do not have production sites for such work, especially among humanitarian specializations.

Thus, the full experience of self-realization is not formed in all students in ordinary educational practice. As a rule, students can realize themselves in the learning process and partly in science, but often they do not have the conditions to realize themselves in practical production activities, which is separated from the current training and is formed outside the universities after graduation.

The introduction of the SIE network in universities contributes to the solution of these problems of modern education, to unite and joining various areas of students' self-realization, combining them into a single process for innovative and practical activity. It is important that these enterprises act as an organic continuation of the students' training and scientific activity within the walls of the university, and become a practical platform for elaboration and approbation of ideas, initiatives and scientifically applied researches of students.

In order to be a full part of the university process and to generate innovations successfully, SIE activities should, of course, expand and provide opportunities for student self-fulfillment in university training. Obviously, the common, basic trends of the ensuring such self-fulfillment exist, which should be taken into account and respected when considering the activities of SIE universities (Gorfinkel, 2011).

Currently, the Belgorod State Technological University named after V.G. Shukhova employs more than 100 small innovative enterprises. Among them there are enterprises founded with the involvement of students in the authorized capital. As a result of our analysis of the working conditions of students at these enterprises, the following three main areas trends of students' self-fulfillment were determined:

- the personal involvement into the innovative process;
- disclosing the capabilities in the innovative process;
- the social integration into the university community

In Figure 1, the content of the trends of self-fulfillment, which was created on the basis of the analysis of the students opinions who participated in research and innovation activities.

The first trend – the personal involvement in the high-tech sphere in the process of university education – means attitudes toward learning, working at the university as a leading occupation in the current segment of life. This trend is manifested as the students' interest and satisfaction with the training process in the university and in the work of the SIE; as a conviction in the value of the specialty; as a desire to master the profession and achieve success in their work, as well as a high psychological interest in research and innovation. The high personal involvement of students into the training process and working in SIE are also related to their desire to be similar to teachers and representatives of the chosen profession, with a desire to comprehend the profession and holistically express and manifest themselves in the academic, scientific and extracurricular fields of activity (Gorfinkel, 2011).

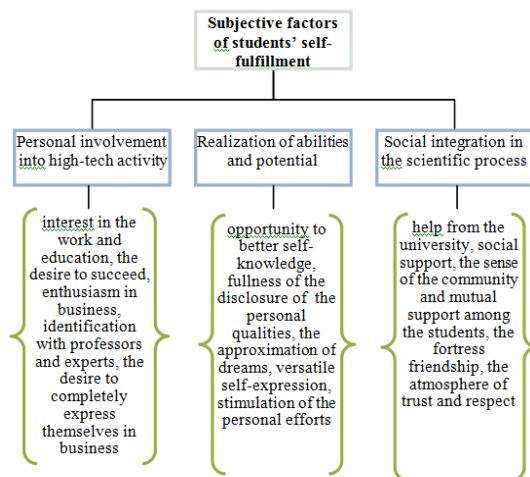


Fig. 01. The psychological trends of students' self-fulfillment in the small innovative enterprises for high-tech business

The activity aspect of students' self-fulfillment, the degree of the intensity of their work, the interest in training, level of immersion in general, the level of significance, the subjective value of educational, scientific and innovation activities are reflected in the content of the first trend.

The second trend – realization of capacities and internal resources - means development of personal potential of students, their opportunities for self-expression and self-knowledge in the activities of SIE, the realization of the abilities and talents. For complete students' self-fulfillment, first of all, it is necessary fully disclose their internal qualities and resources, their understanding of themselves as successful and effective subjects, the presence of incentives for their efforts in learning and scientific innovation work, their understanding of the obvious usefulness of the training in the university and the opportunities of better self-knowledge and self-expression as productive people (Tomlinson, 1993).

This trend reflects the personal aspect of the students' self-fulfillment and presents a central trend their professional, scientific-research and motivational development, since its content reflects the plan of internal moments of self-development in the profession.

The third trend of the students' self-fulfillment – social cooperation in scientific work and innovation - means the existence of care and attention to the student; availability of assistance from the university and SIE in the solving of not only educational, scientific, labor, but also personal problems; a sense of community and acceptance in the corporate environment, the presence of an atmosphere of trust, mutual revenue and support, the existence of strong friendships, respect, etc. (Gorfinkel, 2011).

The social aspect of students' self-fulfillment in the activity of SIE of the university is reflected in the content of this trend. This aspect points to the importance of developing broad social ties and interactions of students not only in the training process, research and innovative activities, but also in social, creativity and cultural ones in general. For achievement of self-fulfillment, the young person needs to be integrated into the largest possible number of the social groups and communities of different levels and orientations (Conley, 2005).

In general, if universities adopt the above-mentioned working conditions of the IIP this will allow these enterprises to become an organic part of training qualified specialists, and also significantly increase the motivational resource and attractiveness of the innovative-practical activity among students.

The human-focused model model of ensuring students' self-fulfillment in the SIE. As noted above, in addition to the scientific, innovation and entrepreneurial tasks, the establishment of SIE at the university should be provided with a coherent personal addressing and imperative basis that reflects the essential signs of students' self-realization. The generalization of the experience of practical implementation and operation of innovative enterprises in universities gave us the material for highlighting some important components of students' personal orientation in a descriptive model (Figure 2).

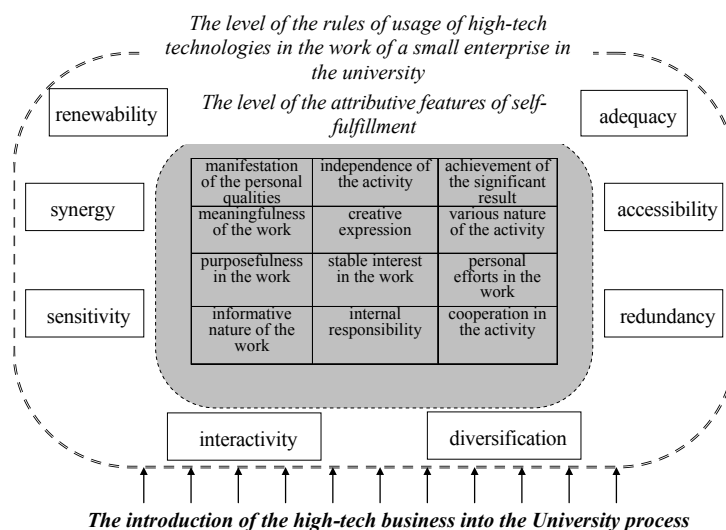


Fig. 02. The human-focused model of development of small enterprises in universities for the high-tech sector

This model unites the two main psychological levels of SIE activity - subjective-personal and imperative. The first level represents the key part of the model, which reveals the attributive manifestations of students' self-fulfillment, as well as the initial contour of conditions for their active participation in practical science and innovation in the field of high-tech business. The next level covers the first one and represents the outer contour of our model, it contains a set of rules for the application of scientific and innovative technologies that ensure a stable self-realization of students in the field of high technologies.

Below let us describe briefly each of the contours that make up this model.

In the internal contour, the phenomenon of students' self-fulfillment in the activity of the SIE is concretized and disclosed through the definition of its attributive indicators that the authors collected and summarized in the research (Gorfinkel, 2011). Among them, the most important are:

- the expression of personal qualities, the readiness to manifest themselves, to discover their strong sides;
- the self-employed, self-leadership and reliance on the internal capacity;
- achievement of personally significant results in the work, desire and aspiration to be successful;
- rich and interesting work, the consistency and concreteness of activities, the focus on the outcome of the case;
- meaningfulness of work, realization of significant meanings in activities, the conscious approach to the case;
- creative element in the activity, the possibility of experimentation, gaining of new knowledge, ways of thinking and skills in the activity;
- the variety of activities, flexibility and a wide range of innovative forms and mechanisms of research work;

- internal responsibility, understanding of authorship and participation in business, involvement in developing the content of the workflow;
- dedication to work, the existence of a goal in life and its achievement through training in the university and scientific and innovation work;
- steady interest in the work, personal interest in activities, the desire to learn more, to discover, to do;
- investing internal efforts in the work, ability to overcome difficulties and obstacles in activities;
- cooperation in activities, the dialogical nature of interaction, the desire for agreement and trust, a culture of communication.

The external contour of human-focused model is deeply connected with the above-mentioned signs of students' self-fulfillment, it provides for appropriate requirements for the application of innovative business technologies. The embodiment of these requirements is expressed in the following *organizational rules*.

The rule of adequacy presupposes the correspondence of innovative high technologies to the activities of small businesses to the tasks and content of the professional training of students, their individual requirements, characteristics and abilities, the level of preparedness, scientific specialization and others.

The rule of accessibility makes it possible to include each student in the process of unhindered access, high-tech activities, dissemination and accessibility of innovative-scientific resources and technologies in the higher school, scientific and industrial cluster; offers the provision of students with the necessary amount of scientific, professional information and others.

The rule of redundancy of innovative technologies presupposes the optimality of the operation of these technologies in the framework of ensuring the actual requests of trainees, the information, technologies and methods of innovative work given to students, technologies should not overload and confuse them, but expand their range of opportunities and help solve problems and problems of interest to them.

The rule of diversification presupposes the use of various types and forms of scientific and innovative technologies (information, communication, electronic, multimedia, interactive, network, virtual, etc.) as components of an integrated system of stimulating and supporting innovation.

The rule of interactivity provides, within the framework of the work of a small enterprise, the possibility of active interaction of students with an scientific, expert, referential community, the possibility of mutual communication of the trainees themselves.

The rule of sensitivity means that innovative technologies in the activities of a small enterprise should take into account the needs and requirements of students, meet their actual development challenges in the process of work and education.

The rule of synergy of innovative technologies requires their direct attitude to the educational process of the university to enhance the culture of training a specialist. Innovative technologies should not only be interfaced with the goals, methods and forms of training, but also fortify it, give it a creative, active and objective character.

The rule of renewability of innovative technologies presupposes their regular revision, correction, addition, updating in the work of a small enterprise at a university. In the conditions of a growing flow of new knowledge, know-how, discoveries, etc. It is necessary to timely reflect and take into account these changes in the field of small business in the university..

7. Conclusion

In general, the construction of a high-tech economy is largely due to the successful work of small innovative enterprises at the universities, which create different conditions for the self-realization of future specialists, and above all, gives them the possibility to make a personal contribution to innovation-scientific work in the sector of high-tech business. The psychological trends of students' self-fulfillment, set forth in this article, can be identified as directions of the humanitarian activity of small innovative enterprises, that stimulate the students' active participation in high-tech activities, the realization of their abilities and internal resources, and social cooperation in the scientific and innovation process. The human-focused model of development of small enterprises in the university is aimed at the activation of attributive signs of students' self-fulfillment by the observance of the certain rules of using modern technologies of the innovative entrepreneurship in the university allows to develop the educational environment as an integral sphere of professional and personal growth of students in the field of high-tech innovative business..

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