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Social and humanistic aspects for the training of technical professionals

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Abstract. Development of soft skills of students is an urgent educational task of modern classical universities. The aim of the article is to demonstrate the experience of approbation of the educational technology for developing soft skills of students in a modern university. The article presents a new approach to the problem of developing soft skills of students at the National Research Tomsk State University (TSU). The authors analyze the essence of the educational technology 'Accelerator' as well as results gained during approbation of this technology based on the Park of Social and Humanistic Technologies of TSU (the structural subdivision of the University). Prospects for introduction of the described technology in classical universities are related to demand for the enhanced quality of soft skills of students in conditions of transition to a new technological paradigm dedicated to social and humanistic technologies. Approbation of the described technology in the modern university allows authors to draw conclusions about its effectiveness and to present results of the experience to a wider audience.

1. Introduction

Modern trends in the development of education and society as a whole not only strengthen the role of modern universities in transformation of the regional development, but also require a new approach to developing skills and over-professional competencies of university students, especially students of technical specialties, who will live in conditions of a new technological paradigm. In this connection, classical universities have a special role because social and cultural development of the society is their original mission. The methodological basis of the work is the idea of an activity and competence approach. The authors have used such methods as analysis of scientific literature, analysis of documents, desktop research, interviewing and questioning of participants in the educational process, educational experiment and description of practical experience of implementing a program of accelerating students' projects in a modern university (case study). Based on the study of foreign information resources and the author's experience, the article provides detailed structure of the educational technology 'Accelerator' for developing students' soft skills; this program includes the following components: training, mentoring, providing conditions for presenting the results of project activities in the community

In the field of innovative activities, the modern society has great expectations for the younger generation because young people are more sensitive to changes in the external environment and adapt to new conditions of professional activity flexibly and quickly.

At the same time, modern trends in the training of specialists show that the educational paradigm on assignment and building up knowledge by an individual has been replaced by a competence-based approach that requires managing the process of cognition itself and the ways of creating, generating,



and assigning knowledge. It is the so-called 'broad education' (soft power), which is an intellectual power and cultural imperative. Education becomes a reflection and a way of creative and modified use of this knowledge in changing and complicating practice.

Therefore, the so-called 'hard' skills (which every professional should a priori have today), are replaced by 'soft' skills that allow a person to be successful regardless of the specificity of activity. These skills include effective communication and management, ability to work in a team, etc.

The fact that specialists with developed soft skills will be in demand in the future labor market is confirmed by the *Atlas of New Professions* developed by the Skolkovo School of Management and the Agency for strategic initiatives of the Russian Federation. According to the Atlas, future professions in the IT field, robotics and engineering require transfessional skills and abilities such as customer focus, interdisciplinary communication, multilingual and multicultural communication, project management, ability to work with people, ability to work in conditions of uncertainty, and artistic skills. Thus, educational establishments need to develop new forms and programs aimed at formatting soft skills and developing transfessional competencies that are not provided by the basic educational programs of universities.

The article describes the experience of Tomsk State University on the use of social and humanistic technologies for training students of technical specialties. In particular, it summarizes the experience of implementing the educational technology of social accelerator during the period of 2015 - 2017, which, in our opinion, responds to two main educational challenges:

- intensification of education while maintaining its quality;
- training through activity and communication.

2. Educational technologies used for developing soft skills

The authors used the following methods: analysis of scientific literature and documents, desktop research, interviewing and questioning participants of the educational process, an educational experiment, and a case study (description of practical experience of the implementation of an acceleration program for socially oriented business projects in a modern university).

The methodological basis of the work was formed by the ideas of the activity and competence approaches. Competence is supposed to be an independent realizable ability to perform activities and solve life problems based on acquired life experience and its values. For our study, the definition of competence includes everything that can be used for an effective action: cognitive components (knowledge and skills) and non-cognitive (motivation, ethical attitudes, value orientations, and behavioral components) [1].

In modern psychological and educational studies, the problem of the development of values, social attitudes, and communication practices is discussed in the context of developing the theory and practice of humanistic technologies and providing psychological and educational support. Psychological and educational support is the process of creating conditions under which students acquire the experience of transforming their personal potential and the potential of the social environment into their own education resources [2].

The special role of humanistic technologies for developing these soft skills is crucial because these technologies focus on the design of educational environments that allow people to build life-trajectory and realize life resources as much as possible. Thus, the relevance of humanistic technologies is justified by the priority of education in teaching students new ways of thinking and new forms of activity [3].

Researchers emphasize the role of high humanistic technologies, which determine the personal presence of a student in his education process with the ability to influence it, provide training for innovation and form the competences of effective group interaction, communication and joint activities necessary for a person's life in an open educational space [4].

Taking into account social and humanistic aspects of training professionals, educational techniques for developing soft skills mean the form of organizing activities, in which students interact with the social sphere, learn it more deeply, master its values, actualize their own potential for performing

socially beneficial activities, and acquire successful experience in solving social problems while developing social and communicative competences.

Nowadays, there is a wide variety of educational technologies used for developing soft skills. They include the following:

- acceleration technologies, that is intensive educational programs including weekly workshops, trainings, and practical meetings, which allow working out a business model of a project in a short time in order to present it to investors and the community;
- club technologies, that is informal meetings with specialists, networking, and presentation sessions for designing changes in various fields;
- *service learning* technologies (learning through action / compassion / service), that is the formation of project and entrepreneurial competencies through socially beneficial activities (social practices, internships in non-profit organizations, etc.).

The so-called *accelerators* are becoming increasingly popular among existing educational technologies aimed at developing transfessional competences in the university environment. Currently, the accelerator is a technology that includes educational activities, consultations, mentoring support, access to equipment, and other resources for accelerating projects development. The technology has the following features: a clearly defined period of conduct, group training, training with the participation of mentors and well-known specialists/entrepreneurs, and training that ends with the presentation of projects to investors (demo days) [5, 6].

Generally, the operation cycle of accelerators consists of five main phases: acquaintance, selection of applications, educational program, demo day, and further support.

The acquaintance phase consists in posting information about the launch of the accelerator on the Internet, social networks, and through the business community. It is also possible to conduct special informational events.

The phase of selection of applications consists in placing the registration form (usually in an electronic form) and the subsequent selection of candidates among those registered based on the specifics and themes of the project team and growth potential.

The phase of the educational program includes a series of lectures, seminars, trainings, workshops, and business games aimed at acquiring knowledge and gaining the necessary skills by the team members. Duration of training ranges from six weeks to several months. A mentor who is a professional in a particular area of knowledge and/or activity usually works with each team [7].

The phase of the educational program ends with demo day when participants get the opportunity to present their projects to investors. This day is important both for investors and for project teams because presentations of projects may result in receiving investments or establishing useful contacts, which further will subsequently lead to investments. There are various formats for demo days including public presentations, personal presentations, elevator pitch, and others.

Mainly, accelerators are focused on high technology, in particular on information technology field. At the same time, we can notice a general tendency to the emergence of social accelerators, which are aimed not only at developing entrepreneurship in the region, but also at promoting social projects for the benefit of certain categories of people and/or aimed at solving certain acute social problems in society. Examples of existing social accelerators are StartUp Chile (Chile), HSE Start Up (Russia), Social Entrepreneurship Accelerator at Duke (USA), Rybakov Foundation (Russia).

As for the form of organization of activities, social accelerators can function either as separate structures/programs or as substructures within the framework of a classical accelerator.

3. Experience of Tomsk State University

National Research Tomsk State University has a structural subdivision - the Park of Social and Humanistic Technologies (the TSU Park). Its activities are focused on providing consulting and information support for students' social projects, which have features of long-term sustainability and potential for growth into a social entrepreneurship regime.

Based on the study of foreign literature and authors' experience, we proposed a new approach to the development of the technical students' competence. The developed technology 'Social Accelerator' includes such components as training, mentoring support, and providing conditions for presenting the results of project activities in the community; the technology was tested on the basis of the Park of Social and Humanistic Technologies, which is a structural unit of National Research Tomsk State University.

Our interviews and questionnaire survey of students, mentors, and consultants (120 people in total) and summarizing accumulated practical experience show the effectiveness of the accelerator as a technology used for the development of students' entrepreneurial competence.

The educational part contained consecutive topics related to launching a social startup: creating a roadmap for a project, marketing, finance, project team, sales, fundraising and working with investors, PR of a social business project, effective presentations and others. Selected experts competent in various areas of developing and promoting startups shared their knowledge and experience with students; and mentors accompanied the process of developing projects' business models and helped to determine effective project implementation plans. It is important to point out that this was learning by action, i.e. after completing the study of each topic, students had the possibility to perform a specific action to implement their project, for example, to launch a group on a social network, to organize and conduct the first fundraising event, etc.

We emphasize that within the framework of the *StartupSocial* accelerator, special attention was paid to mentoring support of students' projects. Acting entrepreneurs played the role of mentors and led from one to three projects. In our opinion, the applied 'competence model', in which the mentor connects training with practical application of knowledge, and the 'development model', which is based on the mentor's position as an assistant in achieving personal and professional growth through reflection, are the most acceptable for teaching social entrepreneurship to students. They enable students to learn from the mentor entrepreneurial experience in solving social problems and increase the confidence of young people in their own abilities as well as in making decisions. In turn, mentors perform not only the functions of motivators and consultants, but also help students, if necessary, to get in touch with the right partners, investors, experts, clients, because they have already established business contacts. The close interaction of students with mentors, joint consideration of a specific project allows moving from idea to action faster and more efficiently.

All student startups of the TSU Park were implemented by the teams, in which students with leadership qualities came together. Entrepreneurs are leaders because they need to be able to rally people, to inspire them to achieve the goal, and to convince them of the ability to achieve such a level of task fulfillment that previously seemed inaccessible to them. Only a person who can create optimistic plans, calculate risks, explain the essence of innovation, and set up a team has the power to do that. According to specialists in the field of psychology, a leader is a person who realizes the public interest by satisfying his own egoism. Leaders distribute wealth and provide work for hundreds of people by developing their own activities. At the same time, leaders stimulate progress in society and bring a revival to the economy, which gives impetus to the evolution of the society.

The project activity within the framework of the *StartupSocial* accelerator is also aimed at developing students' skills in communication with local and wider communities. Our experience shows, that projects were successful if they were based on building strong relationships with representatives of the local community, to whom student teams were able to demonstrate their discoveries and ideas. The entire period of students life in the university should become a school of civil and professional development, active participation in the organization of the life of the university, city, region, and country. By means of active participation in the scientific and social life of the university, city, and region students acquire skills of organizers, develop their personal qualities necessary for specialists, leaders, and public figures [8].

4. Results

The university *StartupSocial* accelerator as an educational program allowed ninety university students not only to dive into the basics of entrepreneurship in general and social entrepreneurship in particular but also to test their professional knowledge and skills and to assess their entrepreneurial potential in building social business. Ninety students went through the *StartupSocial* accelerator during the period of 2015–2017; some of them came to the Park of Social and Humanistic Technologies only with an idea of a social project, while others came with working social projects that needed commercialization.

During three years, 36 student teams have become participants in the educational program *StartupSocial* accelerator. According to the results of the survey and interviewing graduates of 2015 and 2016, 92% of respondents noted that participation in *StartupSocial* accelerator enabled them to acquire basic knowledge and skills for starting projects, 89% pointed out the importance of professional communication with members of the business community and mentoring.

Today, 16 projects out of 24 projects proposed by *StartupSocial* graduates are active. Currently, 13 teams are developing project activities. These projects are aimed at solving urgent social problems of the region, such as provision of social services to people with disabilities; improvement of social and educational spheres of the region; protection of environment in the region; rehabilitation and involvement of people to a healthy lifestyle and others.

Three years of experience in implementing the technology of *StartupSocial* accelerator allows us to evaluate its educational potential. First, it consists in the emergence of students' sustainable motivation for further activities as a whole and in the desire to continue studying in city, regional, All-Russian and international schools and programs. In addition, students develop a new look on social development and a willingness to present their ideas and projects to a wide audience, to present results of their activities to the local community and to demonstrate participation of the modern university in social and economic development. Performance of a social function is one of the key indicators of universities' development and their place in the society.

Of course, it is also important that the project activity of students within the framework of the accelerator contributes to expanding their horizons and to developing transfessional competencies and personal qualities, as well as increases the cost of graduates in the labor market.

5. Summary

Opportunities for the implementation of educational programs aimed at developing soft skills of students of technical specialties are also available at classical universities, as evidenced by the experience of Tomsk State University. The proven technology of *StartupSocial* accelerator is an innovative tool in achieving the task of higher education institutions to generate a new wave of specialists with transfessional skills. First, this technology allows recognizing students capable of entrepreneurial activity in order to provide subsequent assistance to them in developing relevant aptitudes. Second, this technology contributes to creative atmosphere in educational institutions, which favors development of students' independence, initiative, activity, and the desire to identify problems that are of great practical importance, as well as intensifies business communication between students and qualified specialists. Third, the technology contributes to a wide demonstration of various forms and types of entrepreneurship, stories and practices of existing successful entrepreneurs.

Moreover, the activity of the TSU Park in developing soft skills of students was reflected in the work on independently established educational standards of TSU. Such skills as systemic and critical thinking, development and implementation of projects, teamwork and leadership, and intercultural interaction were included into the group of universal competencies. Thus, the described technology of *StartupSocial* accelerator is replicable and promising for implementing in modern universities because of the increased demand for soft skills in the transition period from the fifth to the sixth technological order.

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