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**PROJECT ACTIVITIES AT THE UNIVERSITY: RUSSIAN AND**  
**EUROPEAN EXPERIENCE**

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**Abstract**

The article discusses the experience of implementing project activities at a university on the example of the project-oriented model of NovSU and the problem-oriented model of Aalborg University. The authors believe that the development of education models based on the introduction of project activities into the educational process can be among the methods of transforming Russian higher education. Modeling the educational process on the basis of project activities allows universities to achieve a systemic result associated with solving the problems of self-development of students and the formation of an individual educational trajectory. The authors have identified a number of identical components of the models as a result of a comparative analysis of Russian and European education models. The system-forming factor in the models is project activity, which provides not only an orientation towards the student's activity in the educational process (through solving specific problems within the framework of the project), but also involves modeling practical situations. Both universities provide for teamwork on the project by small groups of students, the implementation of the project by students every semester with subsequent defense, close communication with industrial partners, systemic changes in the principles of teaching and assessment of those academic disciplines for which the project is envisaged, personnel support for the work of project teams. The project-oriented model in the conditions of the Russian higher education system fulfills the task of complementing and updating the disciplinary approach to teaching, allowing to combine the individualization of education and an interdisciplinary approach.

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*Keywords:* High school, project activity, project-oriented model



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## 1. Introduction

An active search is under way in Russian higher education, which is going through a period of transformations, for educational models that would take into account the constant dynamics of the labor market caused by the trends in the development of the information society. Today, “sharpening a university graduate to a strict set of professional skills is the priority of education in the industrial era, when the basic requirements for the profession remained unchanged for decades” (Ivakhnenko & Attaeva, 2019, p. 22).

The digital era with elements of a rapid pace of technology change, the introduction of innovations, and virtualization of reality dictates new challenges to the higher education system. Hence, the graduate must be able to adapt to changing conditions, be ready for these challenges of the external environment. As the researchers emphasize, “the modernizing Russian higher education system today requires new educational technologies”, which are inextricably linked with life (Starchikova et al., 2018, p. 53). It is important for universities to take into account not only academic achievements, but also “innovation in teaching, both in methods and in content” (Salmi & Frumin, 2013, p. 45), with an emphasis on the quality of graduate training and attraction of young teachers.

Among the various directions of transformation of the higher education system, it should be noted those that allow for a “shift in emphasis from the translation of knowledge by the teacher to the active educational activity of the student” (Popova, 2017, p. 34). Such a strategy for the formation of educational models focuses on increasing the importance of the principles of individualization of education and the subject orientation of education in a Russian university.

## 2. Problem Statement

Project activity today is becoming the object of numerous works, where its specificity is considered as a whole (Belyakov et al., 2011) or certain aspects of it are studied (Kapranova, 2014). It is often noted that project activities form the student's skills to work in a team, which “in the future will provide a beginner specialist with a great advantage over competitors in the labor market” (Shulezhkova & Maksimova, 2019, p. 112). The project activities of trainees “have long established themselves in the West and is gradually being introduced into the Russian education system” (Novikova et al., 2019, p. 77). The didactic effect of project activities at the university is very widely represented in scientific works that draw attention to the shift in the focus of higher education pedagogy towards the student. Project activity is a resource that consists in “increasing initiative and responsibility in the learning process, developing the student's subject position in the development and adoption of a conscious trajectory of an individual educational route in the logic of “objectives - means - result” (Kovrov, 2019, p. 63).

However, today the project activity has already gone beyond the methodology of mastering the discipline, it acts rather as a basis for the acquisition of lifelong learning skills, which allow the graduate to adapt to constant changes in the global labor market, in technology, requirements to work, etc. (Vaganova et al., 2017) One should agree with the opinion that “vivid examples of subject-oriented type technology are project activities, which have great opportunities for self-development and self-organization of students and can be used in the educational process” (Bayborodova et al., 2018, p. 13).

Project activities can become a key factor in transforming the higher education system and complement the traditional disciplinary paradigm, provided that an integrated project-oriented education model is created. The project-oriented model presupposes the development of soft competencies, which acquire a decisive importance in the era of instability and high dynamism of social processes, the “rhizomality” of professional spheres of activity. We believe that modeling the educational process on the basis of project activities in the context of the university will make it possible to achieve a qualitatively final result associated with solving the problems of self-development of students, the formation of an individual educational trajectory, improving the quality of teaching and the practical orientation of education.

The scientific problem, in this regard, is the fragmentation of the research of educational models based on the introduction of project activities into the system of the university, which allows forming an innovative educational environment that solves the tasks that modern higher education faces.

A similar project-oriented model was developed with the participation of the authors of this article in 2019 and began to adapt across all undergraduate educational programs at Yaroslavl-the-Wise Novgorod State University (NovSU). Project activities were identified as a backbone component based on the study of similar experience in a number of Russian universities and conducted research in this field.

As the European experience shows, such models have existed in universities for a long time, they are known all over the world and have positively proven themselves already in the second half of the 20th century. Thus, the Scandinavian model of education PBL (Problem Based Learning) emerged in the 70s of the last century and gained its popularity in Denmark. The PBL model itself is quite versatile. The learning process is built of the student's active position in opposition to the traditional passive process of transmitting knowledge within the framework of the model (Maurer & Neuhold, 2014). Russian universities partially use PBL technologies, for example, when organizing seminars as a method of forming professional competencies (Petrova, 2017).

At Aalborg University, the PBL model imply features that are very similar to the project-oriented model of NovSU due to the use of project activities as a key one in the educational process, as the authors of the article were convinced of during their face-to-face acquaintance with this model in Denmark. During training, students work in teams on a project where “each student completes as many projects as there are semesters in the university”, while the Danes themselves refer to the model as implementing the ideas of project-based learning (Soloviev, 2007, p. 21). The experience of Aalborg University is important in the context of this work, since the Danish university pays great attention to the project activities of students, which, like at NovSU, is mandatory for all students from the first semester.

### **3. Research Questions**

In this paper, we will conduct a comparative analysis of the educational models of NovSU and Aalborg University. Research questions are the following.

**3.1.** What components of the analyzed educational models of universities in Russia and Denmark are identical?

**3.2.** What is the educational effect of the systematic implementation of project activities in the university?

**3.3.** What are the weaknesses of the educational models of NovSU and Aalborg University?

## **4. Purpose of the Study**

The aim of the work is to identify the key components of a project-oriented model of higher education based on a comparative analysis of educational models with the use of project activities implemented in Russia and Denmark.

## **5. Research Methods**

Since the research problem involves the solution of a complex task aimed at identifying the components of a project-oriented model, the authors use a systematic method that allows considering the model as an integral system consisting of interconnected components. Also, the work uses a comparative method in the analysis and comparison of two models of Russian and European practices to achieve the goal of the study, as well as methods of generalization and synthesis of scientific information, which generally complement the applied methodology.

## **6. Findings**

Let us consider the features of two educational models of universities that use project activities as a modeling factor. Both educational models are implemented in universities located in small towns (Veliky Novgorod and Aalborg), that is, universities use such educational models as a resource to increase their competitiveness through the creation of an innovative educational environment in order to attract applicants, including foreign ones.

### **6.1. Competencies in the framework of project activities**

A system-forming component of educational models implemented at NovSU and Aalborg University is project activity that allows shifting the emphasis in the learning process to the student and their active position in the search for knowledge, as well as increasing individualization and practical component of education even in the conditions of the traditional disciplinary system. Much attention is paid to the development of such competencies of students as the skills of group cooperation, goal-setting and the ability to critically assess the situation, the skills of analyzing and searching for information, and the competent use of resources within the framework of the project-oriented and problem-oriented models. The practical component of the projects being implemented is provided by a built-up system of interconnection with industrial partners and the social environment, who act as both customers and experts of student projects. Communication with social institutions and immersion in solving the problems of the urban environment also allows solving educational tasks of project activities, contributes to the formation of a socially responsible personality.

## **6.2. Team work**

An important part of the university models is the technology of teamwork around which project activities are built. Students form small teams (4 to 8 people) to complete a project over the course of a semester, where each team member plays a role. At NovSU, an important element of teamwork is the principle of interdisciplinarity, which implies the unification of students from different fields of study and specialties within a single project. But as they master professional competencies, students have the opportunity to work in mono-disciplinary teams that will be effective in solving problems in a specific area of knowledge. At Aalborg University, teams are made up of participants in the same direction, while interdisciplinarity is achieved by implementing projects that combine different subject areas of each semester. An important part of the teamwork of educational models is the joint immersion in the project problem and the team's search for a solution.

## **6.3. Curriculum**

A prerequisite for both models is the implementation of the project by the team in the semester, which is provided by the curriculum or steering program of the discipline. However, the design of the implementation of project activities in the curriculum of the two universities is different. So, while studying the curricula of Aalborg University, we noted that the semester's labor intensity is 30 credit units, which corresponds to Russian conditions, of which 15 units are allocated for the project in the form of independent immersion in the development of a number of disciplines. At NovSU, the creators of the model have kept the traditional curriculum as much as possible; for project activities in the semester, from 1 to 10 credit units are provided (in the case of a professional project), which is due to the requirements of the Federal State Educational Standard of Higher Education. The curricula of the bachelor's degree program included both general disciplines (Fundamentals of Project Activities, Project Workshop) and professional ones, which provide for the implementation of projects within special disciplines in accordance with the types of future professional activities.

## **6.4. Project evaluation**

The showcase of projects at Aalborg University is prepared in advance and takes into account all aspects of the project being executed, while in NovSU, in addition to the showcase, it is possible to generate project ideas taking into account the focus of the given subject areas. As part of the intermediate certification, students of a Danish university, with a high laboriousness of project activities in the semester, prepare a report and take an exam by a project team, which provides for both written exams with creative questions for essays and practical exams with demonstration of competencies. At NovSU, the project acts as an evaluative tool for the discipline being mastered and its point weight is provided for by the curriculum of this discipline. The Russian model provides for expert meetings and pre-defenses, which allow the team to adjust the work on the project. Both models provide for public protection of the project, which affects the final grade for the project, as well as the mutual assessment of the team members for their contribution to the project from each other. Public defense of projects at NovSU, to which representatives of local

authorities, industrial partners, journalists, NovSU management are invited, allows providing not only an educational effect, but also building closer ties with the external environment.

### **6.5. Project infrastructure**

An important part of the implementation of educational models of the universities under consideration is the provision of students with a project infrastructure to create conditions for large-scale project activities. The implementation of the models requires the use of a large project space (rooms for the work of project teams, the necessary equipment, sites for generation and defence, etc.), given the number of projects and busy students. Since in Aalborg the model assumes that half of the contact work is carried out during the project activities, the university created a separate campus block with mobile partitions as a place for students to work on projects. NovSU also provides rooms for project teams, which are used as such on certain days and hours.

### **6.6. Personnel support**

The introduction of educational models at NovSU and Aalborg University required a radical revision of the traditional personnel support of the educational process. For project activities, it is important, firstly, a qualitatively different attitude of the teacher to the academic discipline, within which the project is envisaged (methodological study of teaching the subject and a different approach to assessment, actualization of project problems and ideas, educational methods of working with small groups of students, etc.). Secondly, the introduction of project activities into the educational space of the university has caused the emergence of new roles in the university environment, which accompany the process of student implementation of projects (from project methodologists to project mentors and tutors, as well as specialists in collecting digital profiles of students' competencies). New roles provide support, direction and coordination of the entire educational process, which is closely related to project activities; allow regularly monitoring and adjusting the work of the team.

### **6.7. Model effects**

We note such effects of educational models of universities, developed on the basis of project activities among the most important, as individualization of education and the possibility of a shift from the traditional system to an orientation towards an active position of a student who, together with a team, works on solving a specific problem. Project activity within the framework of these models is the most important determinant of the formation of an individual educational trajectory, and this is expressed in the student's conscious choice of certain academic disciplines of the variable part of the curriculum or optional disciplines that "close" the educational deficits that arise in the course of work on projects. Individualization also presupposes the choice of a project route, a team, and a project problem. Long-term observations of colleagues at Aalborg University have shown that students are also more motivated to master professional competencies, especially if they have applied expression in the project, the skills of business communication, interdisciplinary vision of the problem and the desire to independently solve it are actively developing.

## 6.8. Weaknesses of the model

The weak links of the educational models under consideration are different aspects of universities. Thus, within the framework of the PBL model, it is most often noted that a student does not master the fundamental disciplines, which is associated with the peculiarities of the curriculum (Soloviev, 2007). There is no such problem in the project-oriented model of NovSU, since the curriculum has remained as traditional as possible. The weaknesses were revealed: firstly, the lack of motivation of a number of students when working in project teams, since not all of them support activities that require activity, independence and individual choice. Second, there is a lack of readiness for such transformations on the part of the teaching staff in a Russian university. It is no coincidence that there are studies of the pedagogical environment of a modern Russian university, aimed at various aspects of the innovative development of educational activities, including the conditions for the introduction of innovative technologies in the university and the readiness for them on the part of teachers (Avakyan & Vinogradova, 2019).

## 7. Conclusion

As a result of a comparative analysis of the project-oriented model of NovSU and the problem-oriented model of Aalborg University, we have established a certain identity of the structures of these models. The system-forming factor of the models is project activity, which provides not only an orientation towards the student's activity in the educational process (through solving specific problems within the project), but also involves modeling practical situations. Both models provide for teamwork on the project in small groups of students, the implementation of the project every semester with subsequent defense, close communication with industrial partners, personnel support for the work of project teams, systemic changes in the principles of teaching and assessment of those academic disciplines for which the project is envisaged. The project-oriented model in the conditions of the Russian higher education system fulfills the task of complementing and updating the disciplinary approach to learning, allowing combining the individualization of education, an interdisciplinary approach and focusing on active educational activities of students.

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