

## MTSDT 2019

### Modern Tools for Sustainable Development of Territories. Special Topic: Project Management in the Regions of Russia

#### ADAPTIVELY INNOVATIVE MANAGEMENT APPROACHES IN PROJECT ACTIVITIES

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#### *Abstract*

A study of adaptive-innovative mechanisms providing improved management of project activities has been carried out, ways of its optimization in the context of educational practice have been identified, a system for translating adaptive-innovative experience through the online design of technology for project activities has been developed. Optimization of online designing of technology for project activities is ensured using technological maps, including scientific, procedural, descriptive, and procedurally effective components of design and reflecting adaptively innovative mechanisms for improving management. Technological maps of the online design of pedagogical systems allow getting an idea about the following:

- about the possibilities and prospects of using adaptive-innovative pedagogical technologies in the educational process (principles, mechanisms of implementing adaptations-innovations of technological microstructures, original methods and tools for assessing competencies);
- on the rational and justified use of mechanisms and methods of adaptations, innovations of technological microstructures in educational organizations, taking into account subject specifics;
- on the use of adaptive-innovative pedagogical technologies to optimize the collection, processing, storage and transmission of professionally significant information.

At the same time, familiarization with technological maps of the online design of pedagogical systems will allow learning the following:

- apply adaptations-innovations of technological microstructures in solving problems specific to areas and types of pedagogical activity;
- analyze the experience of using adaptive-innovative pedagogical technologies in the educational process, introducing its results into practice;
- develop training plans using adaptive-innovative technologies.

A systematic approach to the application of technological maps ensures the preservation of effective traditional approaches to management and the popularization of adaptive-innovative practices.

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**Keywords:** Adaptation-innovation mechanisms, management, online design, pedagogical technology, project activities.



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## **1. Introduction**

Modern management in the regions of Russia actualizes the development of effective technologies for achieving the planned results in terms of resource, including time and limitations. However, it is not at all necessary to solve pressing problems with the help of radical innovations that have no analogues or prototypes (Cardon & Marshall, 2015). A number of constructive solutions can be provided through generally accepted technologies traditional for management and educational activities, the effectiveness of which is achieved through “local updates” – the so-called “adaptations-innovations” (Kazarova & Pchelina, 2017).

The main criteria for adaptation-innovation are the compliance with the social order, which is determined by the specifics of the field of activity, and the achievement of high sustainable results with optimal costs of resource provision. At the same time, an important role for the “viability” of adaptations and innovations is played by the elements of novelty, “local invention”, which are reflected in technologies of a hierarchically subordinate level. So, adaptive-innovative approaches of a methodological level, which are reflected in the main provisions of theories, concepts, approaches, act as integrated circuits for the implementation of technologies of strategic and tactical levels.

The rapid evolution of the technology of project activities over more than a century of history, their actualization in various areas of management and production, invention and education, make it necessary to identify and systematize their adaptive-innovative changes for theoretical understanding, methodological justification, generalization and popularization through specially developed online design systems.

## **2. Problem Statement**

Improving project management through the implementation of adaptive-innovative approaches (adaptation-innovation systems).

## **3. Research Questions**

- 3.1. Identification of adaptation-innovation mechanisms in the management of project activities (on the example of pedagogical technology).
- 3.2. Determination of ways to optimize project activities (for example, educational practice).
- 3.3. Modeling of an online system for designing technology for project activities that provides the translation of adaptive and innovative experience.

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

Identification of adaptive-innovative approaches (systems of adaptations-innovations) in project management.

## 5. Research Methods

A theoretical analysis of sources was chosen as one of the main research methods, publications of domestic and foreign authors on the organization of project activities and the features of its management (Russkikh, 2003; Vorovschikov & Novozhilova, 2007; Moreva, 2008; Polat, 2008; Carr, Loucks, & Blöschl, 2017), which allowed identifying trends and the main mechanisms of adaptation-innovations that are characteristic of the technology of project activities: modification, transformation and combination (Kazarova & Pchelina, 2017; Vetkina, Kudryashova, Fikhtner, Trifonov, & Zhukova, 2018; Hammershøj, 2019).

Analysis of activity products is 138 works submitted to international competitions: I International Competition of Adaptive-Innovative Methodological Developments “Adaptively Innovative Educational Programs” (Veliky Novgorod, 2019), II International Competition of Adaptive-Innovative Methodological Developments “Adaptive-Innovative Pedagogical Technologies” (Veliky Novgorod, 2019) and the III International Competition of Adaptive-Innovative Methodological Developments “Adaptively-innovative methods and tools for assessing the achievements of students I ”(Veliky Novgorod, 2019) by the heads of educational systems at various levels and teachers of higher education, teachers and educators, students and schoolchildren, allowed determining ways to optimize project activities in the context of educational practice.

Modeling of the system of online designing of technology for project activities was carried out taking into account the results of theoretical studies and experimental data.

## 6. Findings

Significant features of the main adaptive-innovative mechanisms for managing project activities were identified during the theoretical analysis of publications of domestic and foreign authors.

The modification mechanism of adaptations-innovations implies improvement, rationalization, application in new conditions of organization forms, methods and techniques typical for them: development of “tandem projects”, the specificity of which implies the cooperation of students and professionals – high-level professionals, and “retro-projects”, related to the revival of traditions, techniques and methods, popular in the region during various times, projects related to 3D-modeling of objects, using 3D-pens and 3D-printers; the introduction of interactive approaches, multimedia learning methods, etc.

Modification adaptations-innovations are mainly associated with organizational and technical methodological techniques and are manifested primarily in the procedural part of pedagogical technology. Moreover, the features of adaptations-innovations of a modification type are often reflected in the names and classification characteristics of projects: editorial and publishing, interactive, computer-game, travel projects, projects - virtual tours, show projects, demonstration projects, etc.

The transformational mechanism of adaptation-innovation is characterized by element-wise representation of competencies, which determines the awareness of mastering concepts, facts, scientific issues, theories, rules and laws, methods and procedures. In this case, additional opportunities for “disclosing” the rules, methods and procedures are provided through hypertexts – information

transformation, based on the establishment of the composition and sequence of actions, for example, in the form of definitions of concepts, nomenclature of objects generalized by the concept, their classification, algorithms of operations for performing specific actions in the structure skills. Thus, adaptation-innovations of the transformational type are mainly carried out based on the content of pedagogical technology and, as a result, are reflected in the implementation of logical, organizational and technical techniques.

The combining mechanism of adaptations-innovations is distinguished by a methodologically justified combination of organization forms typical for project activities, methods and tools with elements characteristic of other pedagogical technologies, for example, pedagogical workshop technology, critical thinking development technology, creative activity intensification technology, student differentiation technology, and others. Adaptations-innovations of a combination type relate to logical, organizational and technical methods and, accordingly, they are reflected both in the substantive and in the procedural components of the technology of project activities.

An analysis of the products of activity - works submitted to international competitions of adaptive-innovative methodological developments, made it possible to identify the presence of adaptations-innovations in their content and methodological support of all the above types: modification, transformational and combination. At the same time, the competitive works of experienced teachers are mainly distinguished by combination adaptations-innovations, which provides a wide range of creative solutions in achieving the planned results and at the same time individualization of the approach to students, and transformational adaptations-innovations, which, in essence, determine the awareness and effectiveness of knowledge development and methods of action due to their element-wise representation.

Students who are fluent in modern computer technologies and gadgets are most interested in modifying adaptations and innovations, including virtual design tools such as a “virtual room” (multimedia photo panorama with the ability to enlarge and move object elements), “exhibit catalog” (systematized collections), “bookshelf” (systematized print media), “online consultation” (systematized Internet resources), “time tape” (object changes in the frame of certain time limits), “audio guide” (comments of experts, cartoon characters, movie heroes or famous leading television), which are reflected in the works.

Identified adaptive-innovative mechanisms and methods for optimizing project activities can be successfully introduced into practice through a specially modeled online system for the design of pedagogical systems.

The system of online designing of technology for project activities includes introducing educators to the following steps.

The first stage is the theoretical justification of the adaptive-innovative technology of project activity being created. It consists of several successive steps.

First, the developer explores the current sociocultural environment, taking into account the requirements that it imposes on education. Then the current pedagogical situation and scientific approaches to its organization are analyzed, as well as the public opinion in the person of students, parents, teachers and specialists in this field. After that, the developer correlates their own conclusions with those conclusions that are expressed in the basic ideas and principles of the design of educational

processes. The analysis allows determining reasonably the classification features of the created adaptive-innovative technology of project activities (methodological, strategic or tactical; modification, transformational, combination or other).

All the above allows the teacher to determine the conceptual basis of the technology of project activities, present its author's understanding, put forward a hypothesis, compare the version of the technology project with a number of developed versions described in the scientific and methodological literature. It is important to come to a reasonable understanding of the essence of adaptations-innovations.

Accordingly, the first stage provides an opportunity to compare the adaptive-innovative model of pedagogical technology with projects (described in the literature and/or created by the teacher-developer earlier). It is important to adhere to the rule of the "golden mean", the essence of which is to take the time to reject tradition

The second stage is the development of technological procedures for project activities. Here the direct creation of the adaptive-innovative pedagogical technology project takes place. When designing, the teacher relies on modern requirements for the content of education, the pedagogical system, given its structure and the functions of all components.

Adaptively innovative pedagogical technology, like any other, reflects a process that includes normatively fixed links, the sequence of which is the logic of a technology:

- goal setting;
- content;
- didactic tools (including technical and multimedia), the complex use of which allows intensifying the process of learning material in the direction of independent acquisition by students of new competencies;
- knowledge digestion quality control;
- diagnostics.

All the above is defined as a certain resource, and when building adaptive-innovative pedagogical technology, the developer has the opportunity to form, develop, and adjust these components.

The third stage is the development of methodological tools necessary for the implementation of adaptive-innovative technology of project activities.

For example, instrumental equipment can be represented as a set of certain methods, tools and forms of training. It should give the teacher an answer to the questions "What to teach?" and "How to teach?".

In order for a technology to acquire copyright status, it should be emphasized that the developer must be well-versed in the didactic capabilities of modern pedagogical technologies, have a certain arsenal of diverse methodological points of view in the form of generalized experience of innovative teachers. At this stage in the development of pedagogical technology, the teacher should rely on scientific, methodological justification and, at the same time, the need for adaptive-innovative transformations: modification, transformation, combination, etc. (Kazarova & Klyuchnikov, 2018; Kazarova & Pchelina, 2017).

The fourth stage is the selection and compilation of methods for measuring the results of the implementation of technological concept. Here, work is carried out in two directions. Firstly, the requirements for the level of mastering the content are systematized and criteria are developed according to which real learning outcomes will be recorded. Secondly, a package of diagnostic techniques is being recruited in the form of rapid surveys, tests, questionnaires, and tests that allow monitoring student achievements and compare them with planned results. It is important to realize that, for example, adaptation-innovations of technological microstructures of a modification type determine the need for appropriate modification changes in methods and tools for evaluating students' activities. Transformational adaptations-innovations used in the development of the content of educational material inevitably entail updating didactic tools and, as a result, the inclusion of novelty elements in assessment methods and tools (which, respectively, are characterized by transformational adaptations-innovations). And, finally, adaptive innovations of a combination type determine the emergence of assessment methods and tools combining the qualities of pedagogical technologies, based on which a combination of their microstructures was carried out.

Designing adaptive-innovative pedagogical technologies is a rather time-consuming, creative process that requires scientific training, methodological knowledge and experience, and, finally, significant time costs.

The system of online designing of technology for project activities, developed taking into account the tools of virtual design, ensures the achievement of the planned results for both novice and experienced teachers.

At the same time, special technological maps for the online construction of pedagogical systems, including scientific, procedural, descriptive and procedurally effective design components, have been developed to help novice teachers and specialists who have decided to borrow the best methodological practices and apply them in the conditions of psychological and pedagogical trainings. Technological maps of the online construction of pedagogical systems, being the basis for the synthesis and translation of adaptive-innovative experience, may be of interest to both scientists and expert educators.

## **7. Conclusion**

The main mechanisms of adaptation-innovation, ensuring the effectiveness of project management, are the following: modification, transformation and combination.

The conditions of educational practice are characterized by a wide range of ways to optimize project activities, due to adaptive-innovative mechanisms used to achieve high sustainable results.

The optimal conditions for the translation of adaptive-innovative experience are associated with the provision of conditions for systemic and structural online design of technology for project activities.

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