

DEVELOPMENT

OF A PEDAGOGICAL MODEL OF COMBINED MANAGEMENT OF THE QUALITY OF EDUCATIONAL ACTIVITIES OF HIGHER EDUCATION STUDENTS

DESARROLLO DE UN MODELO PEDAGÓGICO DE GESTIÓN COMBINADA DE LA CALIDAD DE LAS ACTIVIDADES EDUCATIVAS DE LOS ESTUDIANTES DE EDUCACIÓN SUPERIOR

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ABSTRACT

In the article, based on the analysis of modern approaches to quality management of students' educational activities at the university, specific features of the concept of adaptive quality management of educational activities are identified. The functions and features of the pedagogical model of adaptive quality management of students' educational activities at the university are developed and substantiated. The features of the interdisciplinary project as a technology of adaptive quality management of students' educational activities at the university are revealed. The adaptive potential of various types of quality control of educational activities is revealed. An experimental test of the developed system of adaptive quality management of students' educational activities at the university is conducted. The information presented in the article allows us to conclude that targeted work on the implementation of the pedagogical model of adaptive quality management of educational activities of university students increases the motivation for educational activities, has a positive effect on the development of students' research competence, and contributes to the successful development of levels of training, students' experience in goal setting, goal implementation, and reflection of activity results. It is also important to note the positive impact of the adaptive quality management system of educational activities on the development of students' critical thinking.

Keywords: Educational activities, Developed system, Management, Pedagogical model.

RESUMEN

En este artículo, basado en el análisis de enfoques modernos para la gestión de la calidad de las actividades educativas estudiantiles universitarias, se identifican las características específicas del concepto de gestión adaptativa de la calidad de las actividades educativas. Se desarrollan y fundamentan las funciones y características del modelo pedagógico de gestión adaptativa de la calidad de las actividades educativas estudiantiles. Se revelan las características del proyecto interdisciplinario como tecnología de gestión adaptativa de la calidad de las actividades educativas estudiantiles. Se revela el potencial adaptativo de diversos tipos de control de calidad de las actividades educativas. Se realiza una prueba experimental del sistema desarrollado de gestión adaptativa de la calidad de las actividades educativas estudiantiles. La información presentada en el artículo permite concluir que el trabajo específico en la implementación del modelo pedagógico de gestión adaptativa de la calidad de las actividades educativas de los estudiantes universitarios aumenta la motivación para las actividades educativas, tiene un efecto positivo en el desarrollo de la competencia investigadora de los estudiantes y contribuye al desarrollo exitoso de los niveles de formación, la experiencia de los estudiantes en el establecimiento de metas, la implementación de metas y la reflexión sobre los resultados de las actividades. También es importante destacar el impacto positivo del sistema de gestión de calidad adaptativo de las actividades educativas en el desarrollo del pensamiento crítico del alumnado.

Palabras clave: Actividades educativas, Sistema desarrollado, Gestión, Modelo pedagógico.

INTRODUCTION

In recent years, the pursuit of quality assurance in higher education has evolved beyond simple evaluation metrics to embrace comprehensive management approaches that integrate pedagogical and administrative dimensions. The quality of educational activities is no longer seen as solely the responsibility of faculty or administration but as a shared endeavor that requires coordinated management at multiple levels. This shift calls for the development of pedagogical models that combine various management strategies to ensure the continuous improvement and adaptability of educational processes.

A combined management model for quality in higher education emphasizes the synergy between institutional governance, academic leadership, and student engagement. It fosters a collaborative environment where decision-making is informed by real-time feedback, reflective

practices, and data-driven analysis. Such a model supports flexibility, allowing institutions to respond effectively to changing educational demands, technological innovations, and diverse student needs.

The pedagogical model under development aims to address the complexity of managing educational activities by promoting an integrative framework. This framework balances standardized quality criteria with the autonomy of educators and learners, encouraging innovation while maintaining accountability. By doing so, it facilitates the alignment of curricular goals, teaching methodologies, and assessment practices with overarching quality standards.

Implementing this combined management approach requires scientific and methodological rigor, including the design of tools and protocols that support continuous monitoring, evaluation, and improvement of teaching and learning processes. Ultimately, the model seeks to enhance the overall educational experience, improve student outcomes, and strengthen the institutional capacity to sustain quality in a competitive and rapidly changing higher education landscape.

In this context, there is a search for modern technologies for university management at all levels of its functioning and development - from general management to self-government of each participant in the educational system. Experts in the field of management theory note that the issue of ensuring the stability of quality indicators and the effectiveness of managed processes in modern conditions comes down to the problem of ensuring the flexibility and adaptability of the management system of educational activities of university students to changes in external and internal environmental factors. It should be noted that in innovative university practice, new models of organizing students' educational activities are being formed, a distinctive feature of which is the absence of rigid patterns of interaction between participants in the educational process, giving it a non-linear deterministic nature, flexibility and adaptability to emerging educational situations. This to a certain extent complicates pedagogical management of the quality of educational activities and therefore requires appropriate scientific and methodological support.

The problems of management in the field of higher education are reflected in the works of: Batagan et al. (2011); Biasutti & Concina (2021); Gill et al. (2022); Guash et al. (2012); Hamshire et al. (2024); Lunenburg et al. (2012); Mokalleng & Möwes (2020); Taylor et al. (2023).

The issues of formation and development of adaptive management in educational organizations through ensuring an optimal combination of horizontal and vertical

connections, self-organization and self-development of intra-organizational management systems were studied in the works of such researchers Bray (2007); Clemons & Jance (2024); Khoo et al. (2024); Pellini & Bredenberg (2015); Taylor et al. (2023); Zawacki et al. (2024).

The researchers substantiated the possibilities of the adaptive system of mathematical training of students in the conditions of the information and educational environment of the university, the pedagogical system of qualitative information and analytical support of innovative educational activities in the university, the system of management of the development of higher education based on the information and cognitive approach, the conceptual foundations of consulting as a pedagogical technology of innovative development of a higher educational institution.

The essential characteristics and patterns of pedagogical management of students' educational activities in the educational process of a modern university are revealed. As we can see, a certain amount of scientific data on the problems of education quality management at different levels of its consideration has been accumulated in the literature. However, despite the existing potential, the issues of modeling adaptive systems for managing the quality of educational activities of university students, substantiation of pedagogical means and conditions for enhancing the adaptive potential of the organization of educational activities remain unexplored. A study of the mass practice of managing the educational activities of students in universities shows that the management style based on strict regulation of the activities of teachers and students, standardized assessment of the quality of educational activities based on formal indicators of the effectiveness of the final result continues to dominate (Semenikhina et al., 2020).

The noted shortcomings are the result of the lack of development of scientific and methodological foundations of adaptive management of the quality of educational activities at the level of the activities of the teacher and students, the discrepancy between the traditionally used principles of quality management of training specialists and the changed conditions of functioning and development of the university. University teachers do not have substantiated recommendations on how to effectively manage the quality of educational activities when designing and conducting classes, organizing independent work of students in the context of dynamic changes in the external and internal environment of the educational process. The above allows us to state the presence of a contradiction, which appears in the form of a discrepancy between the objective demand for adaptive management of the quality of educational activities of university students, on the

one hand, and the unpreparedness of teachers for such management due to the lack of development of the pedagogical model of adaptive management of the quality of educational activities of university students.

The purpose of the article is to develop and substantiate a pedagogical model of adaptive management of the quality of educational activities of university students.

MATERIALS AND METHODS

Research methods: both theoretical (analysis and synthesis, modeling, generalization, analogy) and empirical (questionnaire, observation, testing, pedagogical experiment) methods were used in combination. The experimental results were processed using mathematical statistics methods. All research methods, interacting and complementing each other, ensured the reliability and validity of the information obtained.

RESULT AND DISCUSSION

The scientific novelty of the research results is as follows:

1. The content of the concept of "adaptive management of the quality of educational activities" is specified as a process of effective response and modernization of pedagogical technologies in the activities of a teacher in accordance with changes in the educational environment and the needs of students. Its essential features are highlighted: the use of flexible methods of pedagogical management that ensure the ability to promptly and proactively take into account the challenges of the internal and external environment in relation to the system in making management decisions; personalization of management by taking into account the capabilities of each student in order to ensure his active and successful involvement in educational activities.
2. The content and structure of the pedagogical model of adaptive management of the quality of educational activities of university students are developed and substantiated. The system of functions is disclosed and the features of the phases of the management cycle of the adaptive management model of the quality of educational activities are highlighted: design (providing students with the opportunity to freely choose the level of the goal and adjust it as they develop; joint planning of individual and group routes for mastering the content of the discipline), technological (highlighting the principle of motivating management that requires activating the personal position of the student and involving him in the construction and implementation of his own educational activities with pedagogical support and accompaniment by the teacher; involving students in co-management through the use of modern

means of communication and cooperation; ensuring an adaptive and non-linear educational process based on the implementation of individual educational routes; reflective phase (strengthening reflection in the activities of the teacher and the educational activities of students; ensuring the likelihood of success in educational activities for each student; priority of self- and mutual control over external control; synergy of control and correction, actualizing the need of students for self-change; turning assessment into a means of developing the educational and social experience of the student) (Mykolaiko et al., 2022).

The adaptability of the quality management model for students' educational activities at a higher educational institution is ensured by the specific features of its basic components: the target component is provided by providing students with the opportunity to choose the level of the goal and adjust it as they develop; the substantive component is provided by identifying a system of general (purposefulness, responsibility, openness, uncertainty, feedback, democracy, necessary diversity, efficiency, advanced reflection, adaptability) and special (motivational management, flexibility and situationally, subsidiarity, eventfulness) management principles; the procedural component is provided by using a project-based approach to organizing students' educational activities, which allows for: independent choice of the project topic by the student, taking into account their own interests and aspirations; the integrative nature of project-based educational activities, which involve convergence of value-oriented, cognitive, communicative, transformative, and aesthetic types of activity; development of decision-making skills at all stages of the project - from design to reflection and correction; the open nature of the integrated productive activity (learning tasks and situations, learning activities, control and assessment), allowing for flexible management of the educational process at each phase of educational activity; the control and assessment component – due to the transition from external control of the quality of educational activity, through mutual control to internal self-control of students.

3. The article reveals the features of an interdisciplinary project as a technology for adaptive management of the quality of educational activities of university students: focus on developing key competencies in students (creativity, critical thinking, etc.); integration of the content of two or more disciplines; high degree of student independence; integration of students' educational and research activities. The technology of pedagogical management of the quality of educational activities based on interdisciplinary projects includes an interconnected sequence of stages: motivation (self-determination in the subject

and personal senses), design (designing a trajectory for implementing actions to develop and implement the project, creating the necessary information basis, determining methods and techniques for working with information, communication methods in the process of project implementation); implementation (implementation of individual and group actions to implement an interdisciplinary project, organization of intragroup, intergroup and other types of communications; presentation of the progress and primary results of each stage of the project; active participation in the examination of other students' projects); reflection (self- and mutual control of the process and the result obtained).

4. The adaptive potential of various types of quality control of educational activities of university students has been identified. It has been substantiated that the use of multi-level adaptive tasks, which are characterized by a certain complexity and difficulty, contributes to strengthening the adaptive potential of various types of control of the formation of competencies. The distinctive features of multi-level adaptive tasks have been identified: motivated involvement of all students in the educational process; focus on the inclusion of self-regulation mechanisms; individual pace of students' progress from level to level.

An analysis of the approaches of researchers to disclosing the content of the concept of "quality of education" shows that it is multidimensional, multilayered and, to a certain extent, subjective, which means that it is difficult to reach a general agreement in understanding the quality of education. At the same time, almost all researchers note such a common feature of the quality of education as its compliance with requirements, goals, and norms (Desiatnyk et al., 2022). Depending on who makes the requirements and standards, the quality of education will have its own characteristics. In a democratic society and a market economy, the quality of education must meet the requirements of various subjects of education: an individual, a family, the sphere of production and services, society, and the state. In domestic pedagogy, a certain amount of scientific knowledge has been accumulated in the field of education quality management: the content and structure of the concept have been developed, its features have been identified at different levels of management and in relation to different types of schools.

Researchers agree that in the concepts and models of education quality management, issues related to identifying the conceptual foundations and principles of managing the quality of educational activities at the level of a teacher and students are insufficiently developed. Meanwhile, this is where students and teachers interact to achieve the goals and objectives of education. The content and

process of quality management of educational activities largely influence the quality of the result of this activity. Management of students' educational activities is the activity of a teacher in planning, organizing, coordinating and controlling students' educational activities. We consider educational activity as a special type of human activity, in the process of which education occurs as the development of a person's life experience. Educational activity includes: the student's activity in upbringing - educational activity; the student's activity in teaching - educational activity; the student's activity in development - development activity. Educational process - the process of implementing educational activity.

We take this interpretation of educational activity as a basis, since it corresponds to the modern project-technological type of education, which is replacing the scientific type of education. Project-based, interdisciplinary, problematic, technological as characteristics of this type of education cannot be fully disclosed and implemented if we limit ourselves to purely educational activities of students. In real innovative practice, this trend has been noticed and is already being implemented - students are increasingly involved in the process of studying academic disciplines in the implementation of disciplinary and interdisciplinary projects, work in groups and teams, in interaction with employers through master classes, intensive courses, project sessions, hackathons, etc. All this suggests that in the process of studying academic disciplines, students master not only scientific knowledge in a particular area, but also acquire life experience in solving problems (developmental activities of the student), interacting with classmates, teachers, employers, etc. (activities of the student on education), that is, purely educational activities are integrated with the students' activities on their own targeted development and education (Drushlyak et al., 2023).

The educational activities of the student can be carried out in two forms of organization: 1) in the form of self-education (including self-study, self-education, self-development); 2) in the form of the pedagogical process as a process of implementing joint activities of students and the teacher. Taking this into account, in this study, quality management of the educational activities of the student is considered as a process of implementing joint activities of students and the teacher.

In the modern educational environment, characterized by a high degree of uncertainty, complexity, dynamism, quality management of educational activities should be adequate to these challenges. In order to ensure the achievement of the planned learning goals in these conditions and at the same time take into account the characteristics

and develop the personality of each student, taking into account his individual interests and educational potential, quality management of educational activities should have the property of adaptability (Yeromenko et al., 2023).

The problem of adaptation is one of the fundamental interdisciplinary problems, studied from the standpoint of socio-philosophical, medical-biological, cybernetic, psychological-pedagogical and other approaches. The main feature of adaptive control systems is their ability to promptly and proactively take into account the challenges of the internal and external environment in relation to the system in making management decisions. This general idea of the adaptability of system management can also be implemented in the management of the pedagogical process at different levels of its implementation. Adaptive management involves the use of flexible management methods that allow you to respond both to internal changes in the controlled subsystem and to external challenges emanating from the environment surrounding the system.

Among the specific features of adaptive management, functional (reaction to changes, adaptability to the environment) and features reflecting work with information (collection, processing, generalization, use) are distinguished. Adaptive management of the quality of educational activities of university students is a dynamic step-by-step process of modernization of pedagogical technologies, ensuring consistent development of educational results and motivation for student achievement in accordance with the requirements, on the one hand, and individual capabilities and needs of students, on the other. The essential feature that distinguishes adaptive management of the quality of educational activities of students in higher education is the focus of management on taking into account the capabilities of each student in order to ensure his active and successful involvement in educational activities.

The developed pedagogical model of adaptive management of the quality of educational activities of university students is based on the following provisions: focus on the development of sustainable cognitive competence, the desire to learn new things as the basis for professional competence in the conditions of fluid uncertainty of the environment; ensuring non-linearity of the educational process, allowing for the personification of educational activities; creating conditions for interactive interaction of participants in the educational process, their involvement in cognitive activity, involvement, independence and responsibility. These provisions are specifically reflected and filled in the content of the main components of the pedagogical model: target,

substantive, procedural and control and assessment (Kovalenko et al., 2021).

The adaptability of the target component of the educational activity quality management model is ensured by providing students with the opportunity to choose the level of the goal (minimum acceptable, optimal and excellent levels) and adjust it as they develop.

The substantive component of the model acquires the property of adaptability due to the allocation of a system of general and special management principles reflecting the features of the educational activities of students in the conditions of non-linear development. Among the general management principles, the principle of adaptability is highlighted, according to which the adopted management decisions should be promptly revised in accordance with changes in the state of the managed system and the conditions of its functioning. For example, the process of forming a particular competence, a particular knowledge, skill or ability in a student goes through a number of stages. In accordance with these stages, the teacher's management influence on the process should also change.

As for special principles, here we, following other researchers, highlight the principles of motivating management, flexibility and situationality, subsidiarity, and eventfulness.

The principle of motivating management reflects the pattern according to which the effect of pedagogical influence on the part of the teacher becomes maximum only when it meets an adequate response from the student. This principle requires the activation of the student's personal position and his/her involvement in the construction and implementation of his/her own educational activity with pedagogical support and accompaniment by the teacher. Ensuring the probability of success in educational activity for each student through the use of motivating management mechanisms acts in the model and as one of the key psychological and pedagogical conditions for adaptive management of the quality of students' educational activity. The principle of flexibility and situationality focuses on the construction of a non-linear model of the educational process at the university, taking into account changes in the external and internal environment. The principle of subsidiarity consists in delegating authority and responsibility to students to involve them in co-management of educational activity for all systemic characteristics of the educational process. For example, the teacher gives students the opportunity to independently select the content of educational material on a particular topic, independently formulate or choose a project topic,

forms and methods of presenting the results of their educational activity, etc. The system of functions of adaptive management of the quality of students' educational activities is disclosed, reflecting the main phases and stages of the management cycle and including: at the first phase (activity design) - diagnostic, target orientation, planning, organization functions; at the second phase (implementation of the activity program) - motivating, communicative, formative; at the third phase - control and analytical, correctional and self-improvement.

The procedural component of the pedagogical model of adaptive management of the quality of educational activities assumes reliance mainly on the requirements of the project approach to managing students' educational activities. An interdisciplinary project serves as a didactic tool for implementing the model of adaptive pedagogical management of the quality of the educational process in the joint activities of a teacher and students.

At the level of the control and evaluation component, the adaptability of the pedagogical model under consideration is ensured by the transition from external control of the quality of educational activities, through mutual control to internal self-control of students.

Adaptability of quality management of educational activities during the design and implementation of an interdisciplinary project is ensured by identifying projects of varying levels of complexity in accordance with three levels of individual activity (situational activity, supra-situational activity and creative activity): micro-projects (for example, solving interdisciplinary problems, completing professionally oriented assignments, etc.) corresponding to situational activity and completed within the framework of one or two lessons; mini-projects corresponding to supra-situational activity of an individual (preparation of interdisciplinary papers as part of a team, reports, game modeling, etc.) and completed within the framework of a major topic or section of the course; macro-projects corresponding to creative activity of an individual (preparation of research interdisciplinary individual or group projects, etc.) and completed within the framework of the entire course being studied.

All three groups of projects are interconnected in terms of goals, content, forms and methods of the educational process and therefore represent a holistic system of organizing training. The system-forming factor is a macroproject focused on the entire period of studying a discipline (disciplines) and setting target, content and procedural guidelines for projects of lower levels of complexity.

The main feature of an interdisciplinary project is that it is cross-cutting in nature, and its result is a product that is

significant for students, which in our experimental work was a video clip, a scientific article, a digital educational resource. The process of developing and implementing such a project is monitored and discussed in accordance with a predetermined roadmap for implementing the project (usually weekly during the semester in classes and consultation hours), which ensures the adaptability of students' educational activities.

The formation of an adaptive system for monitoring the quality of students' educational activities assumes that it is implemented based on the principle of transition from external quality control of educational activities to internal self-control of students. This is ensured within the framework of the invariant logic of movement, which includes three stages. At the first stage, external control over the organization of students' educational activities dominates. Here, the adaptability of control and assessment lies in the differentiation of the content and volume of control tasks and questions by levels of assimilation, in the introduction of elements of mutual control by organizing students' work in pairs. At the second stage, the proportion of work in pairs and, accordingly, mutual control increases, during which conditions are created for learning based on a joint operational analysis of the errors made, which significantly increases the degree of adaptability of learning, since correction is carried out not deferred, but at the moment of detection of the error. The synergy of control and correction with the moment of the error occurrence is also facilitated by the fact that the teacher guides students to comply with the rules of mutual control aimed at helping, prompting, which, with this approach, turn into a means of training and education, development of the student's educational and social experience. At the third stage, there is a transition to internal self-control, due to the formed stable motivation, the ability to set goals and achieve goals, the presence of developed cognitive, communicative, transformative skills and abilities.

The movement towards internal self-control due to the gradual rejection of the need to prepare feedback tools allows you to move on to mastering creative, heuristic types of activity, when the main thing is not control, but launch and management, self-launch and self-management. In the course of implementing micro and mini-projects, the strengthening of the adaptive potential of different types of quality control of educational activities is facilitated by the use of multi-level adaptive tasks, distinguished by a certain complexity (determined by the objective properties of the problem situation, the composition of the elements, the number of connections between them, the degree of their uncertainty) and difficulty (the degree or measure of

uncertainty for the subject of certain aspects of the task or task).

Thus, the presented information allows us to conclude that targeted work on the implementation of the pedagogical model of adaptive quality management of educational activities of university students increases the motivation for educational activities, has a positive effect on the development of students' research competence, and contributes to the successful development of levels of training, students' experience in goal setting, goal implementation, and reflection of the results of activities. It is also important to note the positive impact of the adaptive quality management system of educational activities on the development of students' critical thinking.

CONCLUSIONS

In order to achieve the planned learning objectives and at the same time take into account the individual interests and educational potential of each student, the management of the educational activities of university students should be flexible and adaptive.

The pedagogical model of adaptive quality management of the educational activities of university students is a dynamic step-by-step process of modernization of pedagogical technologies, ensuring the consistent development of educational results and motivation for student achievement in accordance with the requirements, on the one hand, and the individual capabilities of students, on the other.

The system of functions of adaptive quality management of the educational process reflects the main phases and stages of the management cycle and includes: in the first phase (activity design) - diagnostic, target orientation, planning, organization; in the second phase (implementation of the activity program) - motivating, communicative; in the third phase (reflection) - control and analytical, correctional and self-improvement.

Specific characteristics of the pedagogical model of adaptive quality management of students' educational activities are: providing students with the opportunity to choose the level of the goal and adjust it as they develop; reliance on a system of general and special management principles, in which the principles of adaptability and motivating management play a key role; transition from external control through mutual control to internal self-control of students.

The didactic means of implementing the model of adaptive pedagogical management of the quality of educational activities is an interdisciplinary project, which is of an educational and research nature and is characterized by:

focus on the formation of key competencies in students (creativity, critical thinking, etc.); integration of the content of two or more disciplines, given that one of the disciplines is basic; a high degree of student independence; integration of student research activities.

Adaptability of quality management of the educational process during the design and implementation of an interdisciplinary project is ensured by identifying projects of varying levels of complexity in accordance with three levels of individual activity (situational activity, supra-situational activity and creative activity).

The use of multi-level adaptive tasks contributes to strengthening the adaptive potential of different types of control over the formation of competencies, which are characterized by: a focus on the inclusion of self-regulation mechanisms; individual pace of students' progress from level to level; motivated involvement of all students in educational activities.

The conducted research does not exhaust the problem and allows us to outline aspects that require attention. In particular, the following problems require further research: issues of education quality control in connection with the total digitalization of education, the introduction of professional standards; the role and place of digital technologies in managing the quality of pedagogical activity in educational organizations of secondary vocational and higher education; goal-setting strategies in the quality management system of the educational process in a university.

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