



### MULTI-LEVEL MODELS OF QUALITY MANAGEMENT IN HIGHER VOCATIONAL EDUCATION INSTITUTIONS

Murodov Nodirbek Oybek o'g'li

Master Degree Student of the 1st Course of the Direction "Management of Educational Institutions" of the Tashkent State Pedagogical University named after Nizami

#### Abstract:

To control and manage the quality of the educational institution, to meet the standard requirements, quality management systems are formed in higher vocational education institutions, and the evaluation and management mechanism was established. This article covers this process in detail.

**Keywords:** Higher education, mission, quality management, forecasting, expertise, modeling, standards, methodology, corporate system.

#### ABSTRACT

This paper presents the results of geomechanical studies of the siltstone massif carried out in the right-bank experimental adit at the site of the Pskemskaya HPP dam. Primary shear experiments were carried out at the following 6 normal pressures on the stamp  $\sigma$ : 0.5 MPa; 1.0 MPa; 1.5 MPa; 2.0 MPa, 2.5 MPa and 3.0 MPa.

**Keywords:** stamp, strength, ultimate strength, siltstone, shear, shear angle, cracks.

#### Introduction

The activity of the management of the educational institution covers the creation of the quality management system of the educational institution, the formation of the organizational structure of the quality system of the educational institution, the development of the mission, vision, basic values, policies and goals. The commitment of the top management to the ideas of quality and its ability to allocate the appropriate resources mainly determines the success of the implementation of the plans for the implementation of the quality system of the educational institution. Thus, the area of responsibility of the management of the educational institution includes the following aspects related to ensuring the quality of higher education: sifat madaniyatini rivojlantirish, uning ahamiyatini e'tirof etish va iste'molchilarga sifatni ta'minlash zarurati;

- understanding of consumer requirements, as well as legislative and state requirements for higher education by all employees of the educational institution;
- formation and implementation of the quality policy of the educational institution;
- quality system processes and heads of departments of the educational institution have goals in the field of quality;



- maintaining the structure of processes and the organizational structure of the educational institution that best suits the goals of the educational institution;
- allocation of resources necessary for the creation, implementation and effective operation of the quality system, as well as ensuring the competence of the employees of the educational institution that guarantees the quality of higher education;
- official approval of procedures and other documents of the quality system guaranteeing the quality of education and other activities of the educational institution;
- annual evaluation of the educational institution's quality system.

The representative of the university's quality management is the person responsible for the creation, maintenance and continuous improvement of the quality system of the educational institution.

In order to control and manage the quality of the educational institution, to meet the requirements of the standards, quality management systems were formed in the universities, and the evaluation and management mechanism was established. This system is aimed at a process approach to educational activities in accordance with the requirements of the ISO standard, which regulates the process of creation, certification and support of quality management systems in the organization. Despite the rapid development of the labor market and educational services, the growing competition between educational organizations of different forms of ownership, and the growing demands of consumers to ensure the quality of educational products, the process of forming quality management systems is extremely slow. Thus, the researches conducted on the issues of increasing the efficiency of higher education management and improving the quality of higher professional education are considered relevant today. It is reasonable to assess and forecast the quality of education of higher professional educational institutions. To achieve this goal, the following tasks must be solved:

1. Analysis of the existing quality system and existing models of self-assessment of educational institutions.
2. Development of a multi-level model of quality management in educational departments of universities based on the EIS<sup>M</sup> model.
3. Development of static and dynamic evaluation models of the higher professional education system.
4. Modeling, data analysis and control of the reliability of the results and achieving an increase in the validity of the quality assessment in the automated system of the management of the educational process.

Two scientific results are presented to the defense:

1. Multi-level model and methodology of automated assessment of quality management in structural units of higher vocational educational institutions.
2. Current and mid-term forecasting models of the quality of higher vocational education educational institutions.

The basis of the first scientific result:

- model of hierarchical assessment of the quality of structural units of the higher professional educational institution;



- the methodology of quality management assessment in the structural units of the university;

- using the automated method of evaluating the winner of the competition based on the results of the group examination and the hierarchical model of quality assessment.

The novelty of the first scientific result lies in the justification of the mechanism and possible methods of adapting the global model of the quality management of educational institutions to a specific university; in unifying the processes of evaluation of structural divisions of the university and the educational institution as a whole; in the development of tools for automating the assessment process.

The second scientific result is based on two mathematical models of forecasting:

- the mathematical model of the current forecasting of the quality management system of structural divisions of higher vocational educational institutions;

- a scenario model for predicting the state of higher vocational educational institutions.

The novelty of the second scientific result: when moving from static models of quality assessment to dynamic models, it allows to create predictive models for changing the values of its individual elements; Adapting the forecasting model of the higher professional education system proposed by T. Saati to the specific characteristics of personnel training in universities. The reliability of the obtained scientific results is determined by the use of proven methods of systematic analysis, measurement theory, efficiency theory, mathematical statistics, operations research, linear algebra, as well as proven techniques and software for their implementation. Reliability modeling, testing the performance of developed scientific and methodical tools by evaluating the quality of interfaculty departments, as well as testing and publishing all scientific results, obtaining a certificate of state registration of the computer is confirmed by The scientific and practical significance of the work is as follows: to provide the possibility of quantitative assessment of qualitative opinions of experts on the factors affecting the quality management system of the university; in ensuring the objectivity and predictable quality of structural units; in the practical application of quality management methods (TQM and TQE) in the university quality management system, adapting the existing EFQM model to the task of analyzing the quality of structural units in the university quality management system.

The quality management system of specialist training consists of three sub-systems:

- quality management of education;

- quality management of teachers' professional level;

- organization of educational process and quality management of technology. The main goal of creating an automated quality management system

automation and improvement of technological processes in the work of educational institutions to increase the quality of training of specialists, to create a unified information environment for higher educational institutions. The system is also designed for:

- creation of a unified information environment for the university;

- implementation of the educational institution's mission to train highly qualified industrial specialists in modern conditions;



- providing information on the main and auxiliary processes of educational institutions;
- improving the efficiency of educational institution management;
- integration of management of all processes within a single corporate system;
- work process automation;
- reducing the total cost of ownership of the labor intensity system and increasing the efficiency of management tasks.

Until now, only separate parts of the automated system that automates private management functions have been formed in higher educational institutions. Today, the use of information and communication technologies and electronic educational resources in education is mainly episodic in nature. A comprehensive e-learning environment has not yet been created as a factor for improving the quality of education. The analysis of the existing approaches to the evaluation of the quality of the educational process in higher education institutions allows us to distinguish two groups of tools: universal tools and special tools built on the basis of the excellence model of the European Foundation for Quality Management (EFQM). The existing approach to the assessment of the quality of the educational process is mainly based on filling out checklists based on the results of individual or group expertise. An experiment comparing the results of two examinations on the quality of the educational process at the departments of the North-Western Institute, based on two traditionally used private methods, shows that the results of the assessment are not correlated. Universal assessment tools are based on the EFQM improvement model, which combines two groups of criteria: Capabilities and Results. Capability group benchmarks provide insight and help assess how outcomes are being achieved. The group of "Results" criteria includes the main indicators and results of the university's activities, that is, what has been achieved using the available opportunities. This model was used as a prototype in the development of scientific results. In the second chapter "Multi-level model and methodology of automated assessment of quality management in the structural units of higher vocational education educational institutions", the first scientific result is the development of mathematical models of current forecasting of the quality management system in the structural units of the Republic of Uzbekistan. released higher professional educational institutions. The technological approach to the analysis of the departments of the educational institution defined by ISO standards made it possible to identify the main activities, the main and auxiliary processes, as well as to compare the model of improvement levels with these processes.

The characteristics of the functional activity of the structural units of the higher education institution determine the need to build a hierarchical quality model for each type of structural unit, as well as for each type of activity. The resulting hierarchy is a sub-model of the EFQM, with the help of which educational institutions are evaluated as a whole, firstly, educational departments perform only a part, not all processes of the educational institution, and secondly, departments of the entire educational institution evaluation results should be agreed and coordinated, which ensures a systematic approach to evaluation.



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