



# The internal system for quality assessment of education results at a medical university

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## ABSTRACT

**Objective:** The problem of devising an education quality assessment system at a medical higher educational institution has been analyzed in the article. The authors compare the views on the interpretation of the concept of "quality of education", as well as examine the principles and criteria for the quality of education. A new approach to the internal system for assessing the quality of education at a medical higher education is offered in the article on the basis of the integration of all the components of the pedagogical system. The following components of the internal system of education quality assessment are considered: the conceptual component (forecasting, planning the strategic areas of the educational process development to achieve the quality of education, the mission and objectives), the procedural content component (monitoring at the initial and final stages of the education quality assessment), the self-analysis component (the analysis of students, teachers, department chairs' activity); the analytical component (visualization of information obtained on the basis of transparency, informational openness of learning and upbringing results, the analysis and elimination of identified shortcomings, the introduction of advanced pedagogical experience into the educational process).

**Method:** The study was conducted at the FSAEI HE I.M. Sechenov First Moscow State Medical University of the Ministry of Healthcare of the Russian Federation (Sechenov University) in the period from February 2011 to March 2017. The sample group size was determined with the use of a special formula. Based on the sample size, 450 respondents were included in the study, and the number of people who would drop out was determined in the sample ( $n = 429$ ), so the sample was representative in terms of quality and quantity. The students from 1 to 6 years were involved in the study in five training programs of the university who were randomly selected. An original questionnaire was devised. The questionnaire contained some standard questions and special questions on the research topic.

**Results:** The main contingent of students is satisfied with the quality of education at Sechenov University and the level assessment of the quality of education is higher in comparison to other universities, but among the final-year students the assessment of the quality of education compared with other universities does not differ significantly. To attract applicants to FSAEI HE I.M. Sechenov First Moscow State Medical University the significant factors were: preserving a good reputation of the university (64.7%), prestige (53%) and the quality of education (50.7%). The most popular competencies among students of all the faculties and courses were the following: willingness to work with modern medical equipment ( $45\% \pm 2,3\%$ ), knowledge of innovative medical technologies ( $31,9\% \pm 2,2\%$ ). Almost every second student ( $55\% \pm 2.3\%$ ) believes that the quality of education at Sechenov University corresponds to the requirements of the current labor market.

**Conclusion:** The conclusion has been drawn on the basis of the conducted research, that the internal system of assessing the quality of education is directed to increasing prestige of Russian higher medical education, its integration into the international educational space.

**Keywords:** quality of education, medical education, internal assessment, competence

## INTRODUCTION

The quality of education is a fundamental category of the state policy throughout the world, the main landmark of the international educational policy of UNESCO, the United Nations, the European Union. The quality of education in the twentieth century was based on the evaluation approach of quality management of a university's activity (SWOT-analysis); the concept of the universal quality management (TQM); requirements of international quality standards ISO 9000: 2000; the multilevel systemic modeling and study of the quality of education were conducted on the basis of educational standards.

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The quality of vocational education is a key area in the training of competitive specialists. In 2001, Russia started modernizing education under the motto "quality, efficiency and accessibility". The ideology of quality management in vocational education presupposes management based on a process approach and is characterized by the initiative, flexibility and systemic integration of higher education in a unified economic complex of the country.

It is axiomatic that qualitative changes are determined by quantitative ones and quantitative changes by qualitative ones. Development serves as the interconnection and interdependence of transitions: when there is a gap in the development, a leap occurs - the transition from one quality to another, as a result of which the quality cannot remain unchanged. This requires the translation of carefully chosen quantitative factors into qualitative levels - intervals, the processing of results by the methods of nonparametric statistics, supplemented by various expert assessments, for example, the level of teachers' knowledge and experience, the degree of students' training, the optimal combination of traditional methods, forms and means, innovative technologies, the goals of learning and upbringing that match the results obtained, by satisfaction of all subjects with the quality of education.

Quality is associated with the number under the second law of dialectics, but quantitative indicators often dominate in the definition of the quality of education, since it is difficult to assess, for example, the worldview of the future doctor on life, his moral upbringing, such qualities as mercy, empathy towards patients.

At present, various approaches to assess the quality of universities' activity are being considered from the standpoint of responsibility before society, the state and students: in the "English model" - the internal self-assessment of the university, in the "French or continental model" - external assessment. The "American model" of educational institutions and educational programs' accreditation combines the ideas of "English" and "French" models.

The category "quality" is a central and system-forming one for the educational system, but the scientific literature does not give clarity in understanding the term "quality of education". In this regard, before considering the problem of creating an internal system to assess the quality of education at a medical university, we would like to present some interpretations of the concept of "quality of education":

- the unity of the procedural and resultant components (1);
- a number of characteristics of a graduate's education (2);
- the conformity of the result with the goals of education (3);
- the degree of satisfaction of participants' expectations of the educational process (4);
- the capability to satisfy consumers of different levels (5);
- the integral characteristics of the process, result and system (6);
- conformance of purpose to the result (7);
- the degree of compliance of the level of education and training of a specialist with the educational standard (8);
- physical, mental and moral health of the student, as well as the level of education and vocational training of a graduate (9);
- a special process directed towards a positive outcome at the "exit point"; the compliance with goals, which means fulfilling consumers' demands, requirements and expectations and as a transformation process, indicating changes in the improvement, providing opportunities for students or developing new knowledge (10);
- a capacity of the institution or program to meet the requirements of consumers (11).

Customers' satisfaction, the suitability for use, or excellence are the foreign researchers' approaches to determine the quality of education.

The "World Declaration on Higher Education for the 21st Century", adopted in 1998 at the World Conference on Higher Education, organized by UNESCO, gives the following definition: "Quality in higher education is a multidimensional concept that should cover all its functions and activities: educational and academic programs; scientific research and scholarships; staffing; students; classroom buildings; the material and technical base; equipment; work for the benefit of society and the academic milieu."

Five paradigms of quality are distinguished in the analysis of views on the quality of education: philosophical, mechanistic, cybernetic, systemic and informational (12).

The neoclassical quality paradigm combines the elements of the cybernetic, systemic and information paradigms and is based on the concept of Total Quality Management (TQM) - Total Quality Management (13).

The Association of European Universities (EUA) while implementing the project on the development of the quality culture proposed eight concepts: "quality as conformance to the goal"; "quality as approval (zero defects)"; "quality as the customer's satisfaction"; "quality as excellence"; "quality as a value for money"; "quality as a transformation"; "quality

as modernization"; and "quality as a means of control." Crosby's ideology of "zero defects" in production, applied to the educational process is widely spread at American universities: "Doing it right the first time" in the classrooms and laboratories of the university, emphasizes the importance of defect-free work in the field of educational services.

The concept of the quality of education as conformance to requirements (licensing, state compulsory education standards, consumers' requirements) is characteristic of the modern stage of development of the domestic system of higher education, or a combined approach to quality, including compliance with requirements and goals. We share N. A. Selezneva's view, who suggests that the quality of education should be viewed as a "balanced conformance of higher education (as a result, as a process, as an educational system) to diverse needs, goals, requirements, norms (standards)" (6). This definition is close to the approach used in the international standard ISO 9000: 2005, that defines quality as the "degree of conformity of inherent characteristics to requirements".

The adherence of the university to a certain quality concept can change. Van Damm D. identifies the four models: quality as standards of excellence; quality as conformance to the goal; quality as the basic standards; quality as the customer's (client's) satisfaction. Different approaches to the definition of quality can be represented as the pendulum's fluctuations from one concept of quality to another, reflecting an endless movement towards perfection (11).

In foreign higher education systems, the following definition is widely used: "quality as conformance to the goal" (Developing an Internal Quality Culture in European Universities, 2005). The European Commission for Higher Education and Research notes that whatever the mission and goals are, the universities strive to achieve them with high quality, and this aspiration should be encouraged by both the state and the public (Gelsenkirchen Declaration, 2004.).

The problems of the education quality management are considered in the works of domestic scientists. The characteristic of the quality of education is its conformance to the requirements, objectives, norms; the quality of education is the degree to which the results of education correspond to the requirements imposed on it, the degree of satisfying the customers' education needs (students, the state, society). Requirements and needs are reflected in the goals of education. Therefore, the quality of education is the conformity degree of the results to the goals (14).

Higher educational institutions are being given more and more academic freedom in designing educational programs: the share of disciplines of the compulsory component has significantly decreased in the standard curricula, and the share of elective disciplines in the cycle of basic disciplines has increased to 70%, and in the cycle of profession-oriented disciplines - up to 85%.

The factor that influences the choice of approaches to the quality of education is the growing competition between universities both domestically and internationally. In order to occupy a worthy niche in the higher education system, a higher education institution needs to work out its own strategy of excellence (15). The university ranking is becoming an increasingly popular complex indicator, which allows one to judge the quality of education indirectly, and which determines the choice of applicants. The competitiveness of the university is assessed by the criteria: the quality of training specialists; the quality of implementation of the state educational standard; the quality of professional training of specialists that ensures their being in demand on the labor market (16).

In our opinion, one should understand the system of interrelated links under the education quality management:

- monitoring at the initial and final stages of assessing the quality of education - identifying the degree of satisfaction with the quality of education of all subjects of the educational process,
- forecasting and planning results - providing strategic directions for the development of the educational process to achieve the quality of education on the basis of the integration of all components of the pedagogical system,
- a competence and activity approach, interactive and innovative methods and forms, ranking and module-problem technologies,
- feedback on the process and result of training received from students and teachers - monitoring of the quality of medical education for all students is discussed both by the departments and interfaculty commissions in order to improve the quality of education (17).

Education as a system consists of various interrelated educational institutions that are guided by the goals, objectives, principles, determined by social, scientific, technical, political, cultural environment. There are subsystems in the education system (subdivisions, the structure of management, personnel departments, students). Being an open system, it is capable of self-understanding or self-analysis, as a result of which a quantitative or qualitative transformation can occur (18).

We offer the following components of the internal system of quality assessment on the basis of the integration of all the components of the pedagogical system:

- a conceptual component: forecasting, planning of strategic areas of the educational process development to achieve the quality of education, its mission and goals,
- a process and content component: monitoring at the initial and final stages of assessing the quality of education;
- a self-analysis component: analyzing the activity of students, teachers, heads of departments;
- an analytical component: visualization of information obtained on the basis of transparency, informational openness of learning and upbringing results, the analysis and elimination of identified shortcomings, the introduction of advanced pedagogical experience into the educational process;
- the analysis of skills development, their correction by the subjects of the educational process on the basis of all the subjects' satisfaction with the quality of education (19).

A student becomes the main actor according to the principles of modern higher education. UNESCO's view on the paradigm of higher education is presented in the declaration of this organization in the section "From vision to action". This section covers almost the entire range of problems arising in the process of the mission and resulting goals and objectives of higher education, the main of them are: - the assessment of the quality of higher education should cover all its functions and activities (20, 21, 22).

The main objectives of the university's internal self-assessment in the Russian model of accreditation are laid down in the following objectives:

- to ensure progress in higher education by developing criteria and principles for assessing the effectiveness of education;
- to stimulate the development of educational institutions and the improvement of educational programs through continuous self-evaluation and planning;
- to guarantee the society that the educational institution or a specific educational program has correctly formulated goals and conditions for their achievement;
- to provide assistance in the establishment and development of universities and in the implementation of educational programs;
- to protect educational institutions from interference in their educational activities and infringement of their academic freedoms.

The internal self-evaluation at a medical university should be viewed as a system of the collective regulation of the balance between the university's right to academic freedom and their responsibility before the state and society. Educational standards are the educational basis for measuring the effectiveness of the university's activity in accordance with its purpose.

One of the criteria for the internal analysis of the quality of services provided by an educational organization is the students' satisfaction with the educational services, since the concepts of "quality" and "education" are not defined once and for all, they evolve depending on the level of development of society and in accordance with its needs. Hence it follows that in relation to higher education, the concept of "quality" should be defined as its conformance to the requirements of the consumers who are students (in many cases paying for this education), employers and society as a whole. Thus, the internal analysis of students' satisfaction with the quality of educational services provided by the university under modern social and economic conditions is a criterion for assessing the quality of education and the competitiveness of the university on the market of educational services in the medical field. From the point of view of external evaluation, the principles of creating intra-university quality assurance systems for education are:

- control of the level of compliance of activity and content of educational programs with the main goals and objectives of the university;
- a person or a structure that is responsible for conducting expert assessments of the activities and planning of the university development;
- availability of an effective information system to support self-evaluation procedures;
- regular self-assessment of activity (management services, programs) and expert evaluation to verify the results of self-evaluation of the university;
- a timely response to the internal evaluation results by improving management methods and structures, educational programs, redistribution of material and financial resources, the introduction of incentives and sanctions.

**Table 1:** The level of the quality of education at Sechenov University (per 100 students interviewed)

year	higher than at other universities	m	lower than at other universities	m	t	p
1 year	41.7	±2.6	1.2	± 0.3	4.9	p≤0.01
2 year	31.9	±2.2	7.2	±1.2	3.9	p≤0.01
3 year	24.0	±2.0	13.2	±1.6	2.0	p≤0.05
4 year	34.9	±2.3	11.6	±1.5	3.1	p≤0.01
5 year	35.6	±2.3	12.3	±1.6	3.0	p≤0.01
6 year	30.2	±2.2	20.9	±2.0	1.0	p≥ 0.05

I. M. Sechenov First Moscow State Medical University was recognized as the largest and most significant medical university in the Russian Federation. The university administration assesses the students' satisfaction with the quality of education who are of different years and faculties in the framework of the quality management system.

## MATERIALS AND METHODS

The study was conducted at the FSAEI HE I. M. Sechenov First Moscow State Medical University of the Ministry of Healthcare of the Russian Federation (Sechenov University) in the period from February 2011 to March 2017. The sample group size was determined with the use of a special formula. Based on the sample size, 450 respondents were included in the study, and the number of people who would drop out was determined in the sample (n = 429), so the sample was representative in terms of quality and quantity. The students from 1 to 6 years were involved in the study in five training programs of the university who were randomly selected. An original questionnaire was devised. The questionnaire contained some standard questions and special questions on the research topic.

## RESULTS AND DISCUSSION

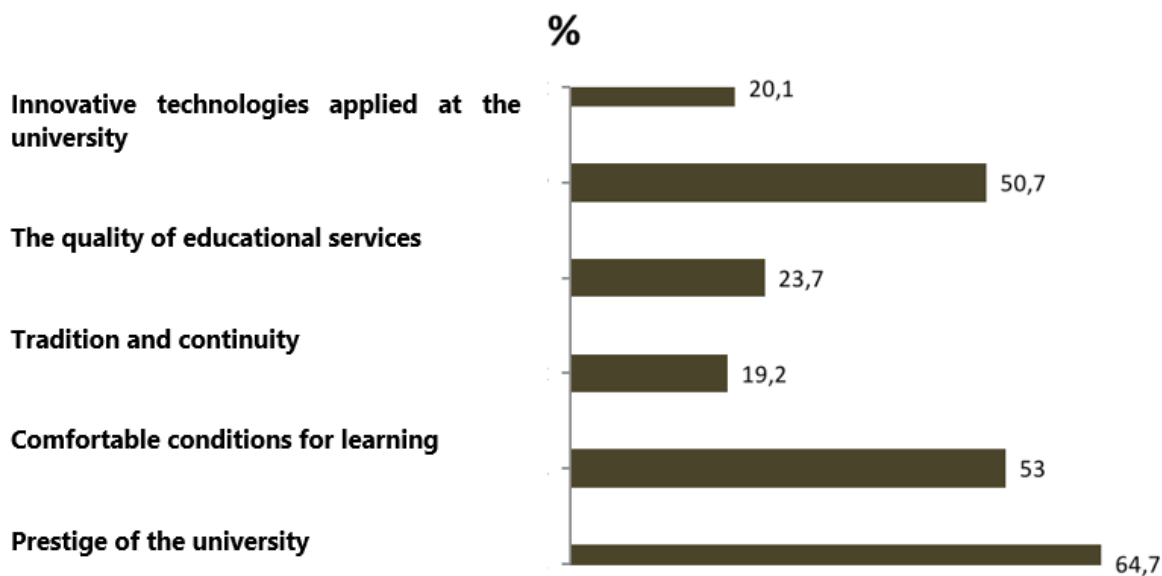
The ratio of respondents by sex is as follows: 67.9% - females, 32.1% males. Respondents were distributed according to the programs of study as follows: Medical Care Faculty - (29.6% ± 2.2%), Medical Care and Prophylaxis Faculty (9.8% ± 1.4%), Pediatric Faculty (4.2% ± 0.9), Dental Care Faculty (11.4% ± 1.5%), the Faculty of Higher Nursing Education and Psychological and Social Work (10.5% ± 1.4%), the Faculty of Pharmacy (20.7% ± 3.9%), , the Faculty for Work with International Students (13.8% ± 1.6%).

The opinion of students of various faculties was investigated at the first stage, from the 1<sup>st</sup> to 6<sup>th</sup> year. The students were asked to assess the quality of education at the university, showing their opinion in the answers to the questionnaire-survey. The results are shown in **Table 1**.

The study of the quality of education at First Moscow State Medical University in view of the students' assessments from different years at university shows that almost every third student from the first to the sixth year thinks (41.7%, 31.9%, 24.0%, 34.9%, 35.6% 30.2% respectively) that the level of education at Sechenov University is higher in comparison to other universities, the difference in the satisfaction evaluation is valid for five years. It was found that satisfaction with the quality of education at Sechenov University among final year students practically did not differ from the assessment of satisfaction with education at other universities, since the differences are not significant.

Thus, the main body of the students is satisfied with the quality of education at Sechenov University and the assessment level of the quality of education compared to other universities is higher, but in the final year the evaluation of the quality of education of students compared to other universities is insignificant.

At the next stage, we studied the factors of the university attractiveness. As the study has shown (**Figure 1**), the leading factor in the choice of the University is its good reputation -(64.7% ± 5.3%), the prestige of the University- (53% ± 2.4%) and the quality of educational services -(50.7% ± 2.4%).



### Good reputation of the university

**Figure 1:** Factors that influence the choice of I.M. Sechenov Moscow State Medical University by applicants (per 100 students interviewed)

The factors such as traditions and continuity ( $23.7\% \pm 2.0\%$ ), the use of innovative technologies ( $20.1\% \pm 1.9\%$ ) at the university are less significant for the students surveyed at the present stage, and comfortable training conditions are the least significant for students ( $19.2\% \pm 1.8\%$ ).

Thus, to attract applicants to Sechenov University, the significant factors were: preserving a good reputation by the university ( $64.7\%$ ), prestige ( $53\%$ ) and quality of education ( $50.7\%$ ).

The study was conducted to identify competences as important in the opinion of students for their future professional activity, among all the competencies that are being mastered by students of the university.

The study showed that the most popular competencies among students in a medical college are the following: readiness to work with modern medical equipment ( $45\% \pm 2.3\%$ ), knowledge of innovative medical technologies ( $31.9\% \pm 2.2\%$ ).

Students identified knowledge of a foreign language ( $28.7\% \pm 2.1\%$ ) and interpersonal skills ( $28.7\% \pm 2.1\%$ ) as less significant competencies. Students marked as the least important competencies: readiness to work in a team ( $14.8\% \pm 1.7\%$ ) and computer skills ( $14.8\% \pm 1.7\%$ ).

Studying the opinions of students about the quality of educational services provided by the university, the requirements of the contemporary labor market,  $55\% \pm 2.3\%$  of the respondents gave an affirmative response to the question.

## CONCLUSION

1. Improving the quality of education is one of the priority tasks of Sechenov University's activity. The quality of the specialists' training at the university is ensured by professionalism of the pedagogical staff, the connection of theory with practice, the use of new pedagogical technologies in the educational process, and the introduction of the point and ranking system to evaluate students' knowledge.
2. It is necessary to define the concept of the quality of education for the medical university to be successful under current conditions that will allow it to effectively apply appropriate quality assurance mechanisms, guided by modern standards to improve not only the external evaluation but also the internal evaluation of the quality of education. The quality of education is an integral characteristic of the set of educational processes. The analysis of the definitions of the quality of education allows us to conclude that there is no unified concept of quality, most often the quality of education is seen as conformance of purpose to requirements. The assessment of the conformity of the educational process to state educational standards is commonly accepted as a modern approach to assess the quality of higher education. In the concept of the quality of a university, the shift of the emphasis is possible from conformance to requirements through the standards of excellence to conformance with the goal.



3. It is desirable to forecast and plan the strategic guidelines of the development of the educational process in the internal system of education quality assessment by integrating all the components of the pedagogical system. The components of the internal system of quality assessment are : monitoring at the initial and final stages of assessing the quality of education; the analysis of the activities of students, teachers, heads of departments; visualization of the information obtained on the basis of the principle of transparency, information openness of learning outcomes and upbringing; the analysis and elimination of identified shortcomings, the introduction of advanced pedagogical experience into the educational process.
3. Reforms in the education system of Russia have been taking place for decades, which was the response to the needs of society. Higher education requires adaptation to society's present day requirements also in respect to the training of medical personnel. Healthcare is the area that underwent significant reforms in Russia, which raised the requirements for the competitiveness of graduates of medical universities. The competitiveness of the graduate is the most important criterion for the quality of education and the effectiveness of the educational organization.
4. The internal analysis of students' satisfaction with the quality of educational services provided by the university under current social and economic conditions is a criterion to assess the quality of education and the competitiveness of the university on the market of educational services in the field of medicine. The internal system to assess the quality of education is directed towards the enhancement of the prestige of Russian higher medical education, its integration into international educational space.

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