# INTERNAL EDUCATION QUALITY CONTROL IN UNIVERSITY

*Eastern-Kazakhstan State Technological University
named after D. Serikbayev*
*A.K. Tomilin*

**The conceptual model of internal monitoring for educational process based on the principles of IOS international standards has been suggested. It is shown that systematic approach allows for appropriate conclusion about competence of every teacher, reliable evaluation of his (her) work quality. The experience accumulated in EKSTU named after D. Serikbayev is described.**

*Key words: ISO standards, quality management system, the principles of QMS, teacher testing, web-technologies.*

**А.К. Томилин**

Usually, the heads of universities pay special attention to the external estimates of their institutions. Certification, institutional accreditation, academic rating positions – all these, undoubtedly, influence the image of university and its competitive performance. But is university management interested in objective internal evaluation of educational process quality? The management style and methods essentially depend on the answer to this question. Only in case of positive reply it is possible to apply an up-to-date management technique accepted in the international quality standards of IOS 9001 series [1-2]. In the opposite case, one cannot provide the principles of quality management system (QMS) as the first of them is not realized – the leading role of management.

If a head sets a clear goal to his team – to provide the quality of educational services – he has to realize the subsequent QMS principles. One should start with arrangement of the major processes, for universities it

is, first of all, educational process. The process development starts with determination of its «inputs»–«outputs» and establishment of placement and final test methods. Not of less importance is quality management in the course of process after each procedure, i.e. current internal quality control. If, for instance, we consider the process of conveyor manufacture, all facts mentioned before are easy to present: a work piece is delivered to the conveyor (input), and then it goes through several processing stages (procedures), from conveyor a final product is given off (output). The quality control is performed at each stage by means of measurements, i.e. objectively. One can always define who and at what stage made a mistake.

In the educational process everything is significantly more complicated. To evaluate and measure the quality of each teacher's work is not simple. Usually, open classes, classes exchange visits, checking of methodical support etc. are in practice. In this case a teacher's professional

competence is evaluated occasionally and subjectively. The problem of evaluation reliability and self-evaluation for teachers' work is being discussed, for example, in the article [3]. The authors of the article have fairly noted that this problem is difficult to solve and has no simple solutions.

One often tries to correlate teacher's work quality with the rate of students' achievements. Does such an approach always show objective estimation? It should be taken into consideration that students' progress does not always serve as a criterion of educational process quality in general and the work of individual teacher, in particular. In university education there has long been the situation in which all participants of educational process (lecturers, students, and management) are interested in maximal increase of this indicator. A lecturer, on the one hand, provides the services, but, on the other hand, controls their quality. As such an approach one cannot exclude the administrative regulation of progress indicators; moreover, there appears the possibility of corruption practices.

What methods can be used to control the quality of educational process? How is it possible to evaluate every lecturer's job objectively and reliably? Without solving these questions one cannot take management decisions relying on facts as it is required by the next QMS principle. There arises the problem of educational process monitoring organization.

In spite of the priority of the final results in education, the essential point in the conditions of credit evaluation is current control of students' knowledge in the course of academic period. According to credit educational approach, the specific weight of current control in the discipline final evaluation is not less than 60%. It is always performed by a lecturer teaching this course. In this case subjective evaluation is not, of course, excluded. It is possible for a lecturer to evaluate at two current control points at his own discretion instead of student's achievement systematic evaluation during the term.

One can improve this undesirable situation when fulfilling two conditions: first, clear definition of control methods in the curriculum at every week, second, introduction of computer program for every-week students' absence and progress registration. Similar computer program is applied in EKSTU named after D. Serikbayev and is one of the resources of the university educational portal SPORTAL (http://www.do.ektu.kz/doektu/Default.aspx). The access for data input on students' progress and absence is strictly limited. The lecturers use personal logins and passwords for this purpose. At the end of every academic week the access is closed. In some exceptional cases (illness, student's absence for other excusing reasons) the data are entered later by the assent of the head of Academic Service Department.

It should be underlined one more time that current students' knowledge evaluation is associated with subjective factor. Therefore, final control is necessary to make maximally objective and independent. All over the world this problem is solved by application of tests in the final evaluation. The bases for test pedagogical diagnostics have been thoroughly developed and successfully applied in the world [4].

Testing knowledge control possesses both decisive advantages and some disadvantages. They often say that at this control method there is no oral communication between a student and a lecturer, there are problems with checking logical discipline connections, there is no opportunity to evaluate the skills of written rendering of knowledge. It is really so, as tests are not intended for this. Hence, in current knowledge control it is necessary to use such methods as interview, written theory checking, and students' reports at seminars, presentations of laboratory work results etc. In other words, current control methods are to enlarge

51

52

the methods used in final evaluation. Unfortunately, sometimes a lecturer uses only tests during term trying to prepare students for test evaluation. In this case the systematic proficiency in the discipline is not formed; students' creative abilities are not developed. One of organizational-academic problems of any department consists in providing the conditions excluding such an approach.

A real advantage of knowledge testing control is its objectiveness and independence. But its application is accompanied with obligatory fulfillment of a number of conditions which will be spoken about below. If all these conditions are met, the data on the educational process quality will be objective enough and, hence, they may be used in analysis. For instance, head of department and lecturers have possibility to compare the average current progress with average exam evaluation on a discipline in a definite students' group. Similar analysis can be performed with respect to every individual lecturer and make conclusion on the results of his (her) job. On the basis of such analysis the management of any level (head of department, dean) can take necessary decisions of academic and organizational character.

Let's consider one more important question. Who has to arrange and perform the final evaluation of students' knowledge? In many universities testing departments are included in registration office which, in its turn, is reported to vice-rector of academic affairs. In this case there is no complete separation of authorities concerned with educational services and their control and, hence, there is a possibility to regulate the students' progress administratively. Usually, it is reflected in refusal (direct or indirect) from development and application of objective methods and tools for students' knowledge control. In our opinion, to exclude such a case is possible by means of arrangement of maximum independent testing centre (department). In EKSTU named after

D. Serikbayev, for example, testing department is included in Quality Department, director of which is directly reported to the rector. The experience has shown the advisability of such authority separation. In some western countries students' progress monitoring is performed by outside agencies not included in university structure.

To perform testing in computer form it is necessary to arrange a number of activities including:
- academic work in test development,
- organizational activity, development of reliable software.

It requires involvement of lecturers and workers from all departments and offices in these activities. Development of test resources for final control is an important part of department academic work. The head of the department needs to focus the lecturer' efforts on this activity, distribute test development responsibilities among lecturers, assist lecturers methodically, and stimulate colleagues for enhancement of testing material quality. Reliable information about the results of learning process depends directly on the quality of control-measuring materials.

Testing department arranges and regulates formation of test resources meeting didactic requirements.  It organizes training seminars for those who compose and examine tests. At those seminars the major attention is paid to methods of test development, principles of test composition, typical mistakes in testing tasks made by designers, training of specialists. Before examination time trial testing is performed to adapt first-year students for this method. After examination time the analysis and generalization of statistical data is made.

Development of reliable software and technical support of testing procedure are rested on Information Technology Center of EKSTU. Special

software for computer testing «Test Master» was developed in it. It allows for standardization of test resources. The given testing program forms a test for every student consisting of tasks from all courses included, according to the syllabus, in the discipline testing resource. Tasks in every part of test resources have the same complexity level, therefore, all designed variants of tasks are the same in complexity.

«Test Master» interface contains information on student's identification as well as all necessary functions including question numbering and the remaining exam time. In the course of exam a student has a possibility to lodge an appeal using in-built function «appellation». Appellation committee has to dispose appellation in electronic form that permits them to computerize the procedure and increase its efficiency.

Application of modern web-techniques contributes to reduce the cases of corruption, guarantee of identification and information monitoring, its reliability, objectivity and is an efficient tool in quality management of educational activity.

Computer testing in EKSEU is regulated by documentary procedure «final control and evaluation of students' knowledge» https://www.do.ektu.kz/laws/smk/10_DP_EKSTU_8_2_4_I_2009.pdf).

In the document the academic and engineering requirements for test resources are defined, the expertise order is developed and the computer testing procedure is described. Besides, the procedures of appellation and correction are applied, i.e. correction procedure of test resources is established to improve their efficiency, the order of academic failure disposition is stated.

Admission to exam on every discipline is given automatically only in case of positive average admissible rating score – 50 points and higher. Students' admission to examination from the dean office is given by the data input in SPORTAL.

After the examinations the test designers, department heads, deans receive the following statistical information which is used for permanent improvement of test materials:
- average exam points (on 100-point scale) in every test database (the base is considered to be appropriate if it is in the range from 60 to 90 points),
- the number of students passing exam in the given testing database,
- mean time spent for test performance on the discipline (the optimal indicator is from 60 to 90% of maximum time required for test performance),
- information about every question in the test base with the number of correct and incorrect answers to it,
- the relationship of average rating score and average exam points in every academic group on every studied discipline is also taken into account.

What conclusions should be made on the basis of the data analysis? The answer seems to be unexpected: one can evaluate objectively lecturers' academic qualification and proficiency, who teaches the given course and is a developer of the test materials. Indeed, qualified, competent lecturer is able to work out the complexity level of tests and time required for their performance adequately. In addition, at professional approach to evaluation of students' current progress (admission rating), on the one hand, and use of qualitative test materials, on the other hand, there is no significant divergence between the average rating score and average exam points in the given academic group on studied discipline. Hence, there appears the possibility to realize the QMS principle mentioned above: when taking decision one should rely on facts. The evaluation obtained as a result of such an analysis can be used in determination of every lecturer's rating. One can make a

53

54

definite conclusion about conditions of academic-organizational work at a definite department.

In order to increase the quality of test resources the documentary procedure «certification of electronic test bases» (https://www.do.ektu. kz/laws/ smk/16_DP_EKSTU_8_2_4_ I_2009. pdf) was developed in EKSTU. Here the requirements for test base and its estimation criteria are determined.

Students and their parents have possibility to get information about academic achievements via terminals located in academic buildings or Internet (http://www.do.ektu.kz/doektu/ Default. aspx?lang = ru). Electronic records allow for efficient result analysis of not only final (intermediate) evaluation but also current (rating) control. In large university it can give opportunity to monitor educational process efficiently. The system of quality management of any university is incomplete and inefficient if there are no tools for monitoring of basic process – educational one - using computer technologies in it.

Thus, efficient internal quality control in university is possible only in the condition of systematic approach to management allowing for solution of the complex problem.

55

**REFERENCES (ALL TITLES IN RUSSIAN)**

1. Quality management in university [Electronic resource] / G.M. Mutanov, A.K. Tomilin, Yu.Ye. Kukina et al. – Ust-Kamenogorsk: EKSTU, 2011. – 116 p. – URL: http://www.ektu.kz/media/132989/manquality.pdf, free (in Russian).
2. Transformation of engineering university into innovation university: methodology and practice / Ed. by G.M. Mutanov – Ust-Kamenogorsk: EKSTU, 2007. – 480 p (in Russian).
3. Dul'zon A.A. Tools for evaluation and self–evaluation of university lecturer on the basis of competence model // Engineering education. – 2011. – № 7. – P. 30–37 (in Russian).
4. Ivanov B.I. Bases for pedagogical diagnostics and educational activity monitoring in engineering university. – Sankt-Petersburg: SPbSU Publishing House, 2003. –121 p (in Russian).