

Approaches For Quality Assurance In The Higher Education

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Abstract

This contribution presents the questionnaire system, developed at the Faculty of Mechanical Engineering VSB-TU Ostrava during the application of Quality Management System [1] and Total Quality Management System, based on the EFQM Excellence Model (European Foundation for Quality Management) [3]. The main parts are questionnaires for:

- New students.
- Students who failed in the first year of their study.
- Actual students – student satisfaction with individual subjects and teachers.
- Graduates.

These analyses help us very well in the self-assessment process [4], which has been repeated once a year since the year 2006 and whose highest achievement was the Czech National Quality Award [1].

This Contribution includes a description of all questionnaires, achieved results, their evaluation and the application enriched knowledge. Some relevant investigations are also compared with the expertise of the Queen Mary University of London, United Kingdom.

Introduction

This paper presents the positive results obtained at the Faculty of Mechanical Engineering, V_B – Technical University of Ostrava, Czech Republic, with the Quality Management System, which was certified in the year 2005. The next step that was done applying the system Total Quality Management (Excellence System), according to the EFQM Excellence Model in the year 2006. The benchmark project, realized with many technical faculties from the Czech Republic and other countries, as one of important steps for improving faculty management, is also presented in the paper. The presented paper describes the acquired results of the QMS and EFQM systems and also shows the main goals, which can be obtained by all other universities and educational organizations. An orientation on a complex quality system and the use of the EFQM Excellence Model has improved university life, its processes and efficiency. Achieving official recognition for the Faculty of Mechanical Engineering from the Program of the Czech Republic National Quality Award 2007 and Manager of the Field 2006 Award for our Dean, is also being promoted by the other faculties of the university. Thanks to this, I can recommend all other technical faculties and universities to follow this way. A questionnaire system, applied at the faculty in the last four years, helped very much in the quality award procedure, as described below.

The presented results have been obtained during the completion of Specific Research at the Universities with student participation, supported by the Czech Ministry of Education, Youth and Sports and with financial support of project INGO/LA09024 – Prestigious Representation of Czech Republic in iNEER Organization.

Student Satisfaction Questionnaire

The main questionnaire is focused on student satisfaction with individual subjects and teachers. This questionnaire has been used since the year 2003, in electronic form and obtained data are yearly summarized, (see Fig. 1). The meaning of individual criterion is evident from the questionnaire form, available on the faculty web: <http://www.fs.vsb.cz/dotaznik/dotaznik1.asp>.

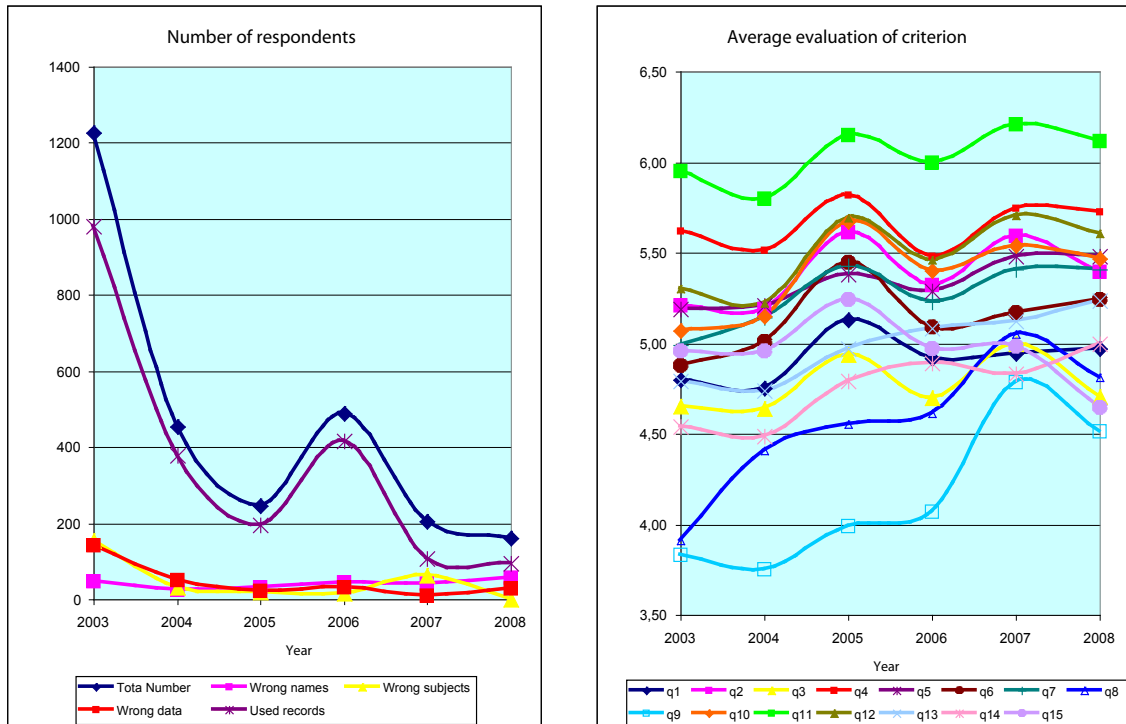
List of questions and rating from 1 –wrong to 7 – the best:

- Q1 In my opinion this course was:
Uninteresting, boring 1 2 3 4 5 6 7 Very interesting
- Q2 In this class there was following environment:
Very noisy 1 2 3 4 5 6 7 Easy, quiet
- Q3 Better part of the lecture:
I didn't understand at all 1 2 3 4 5 6 7 I understood everything very well
- Q4 Our teacher's/tutor's knowledge is in my opinion:
At the low level 1 2 3 4 5 6 7 Excellent, brilliant
- Q5 Teacher's reaction to student's questions is:
He/She doesn't communicate at all 1 2 3 4 5 6 7 He/She is very helpful and tries to give some advice every time
- Q6 Do you have difficulties of taking notes in the lecture?
Yes, every time 1 2 3 4 5 6 7 Never
- Q7 The way of communication between the teacher and students is:
He/She doesn't discuss the problems, doesn't react at all 1 2 3 4 5 6 7 Brilliant communication, with mutual respect
- Q8 Technical equipment for the lecture (utilities, laboratory equipment, teaching aids, etc.):
Very bad, no equipment 1 2 3 4 5 6 7 provided equipment satisfied all the needs
- Q9 The teacher has been using the didactic technique in the lecture.
Never 1 2 3 4 5 6 7 Every time
- Q10 Teacher's speech (speech power, unknown expressions, lisp, etc.) is:
Understandable 1 2 3 4 5 6 7 absolutely unintelligible
- Q11 Teacher's attitude towards the requirements relating to passing the exam:
The teacher never tells us about the requirements 1 2 3 4 5 6 7 The teacher keeps us regularly informed about the requirements for the exam.
- Q12 General teacher's appearance is:
Unsympathetic, untidy 1 2 3 4 5 6 7 smart, elegant
- Q13 Special publication and technical bibliography available for this course is:
Impossible to get special publications in advance 1 2 3 4 5 6 7 There is a sufficiency of appropriate special bibliography
- Q14 In the examination the teacher has in his mind your learning effort during the term.
No, he doesn't care 1 2 3 4 5 6 7 He looks at my learning effort during the term a lot
- Q15 Do you think you can ever use your gained knowledge and experience in future practice, a job, in life in general?
No 1 2 3 4 5 6 7 Yes, I will use all my knowledge in the future

Q16 Are you satisfied with your studies at the faculty? Is there something you really like/don't like in the faculty.

Q17 Please give us any further positive or negative reaction to the appropriate course or teacher.

Fig. 1. Results from the student satisfaction questionnaire



The decreasing number of respondents is very embarrassing (Fig. 1 left), in spite of the massive promotion done by the Student Chamber of the Faculty Academic Senate in the year 2006. The presented results show some fluctuations (Fig. 1 right), but the gradient of all criterion is positive. To increase student interest in this questionnaire, the deans' answers and comments to students' questions are published in a discussion forum, which is a part of faculty web information system.

Freshman Thinking and Expectations

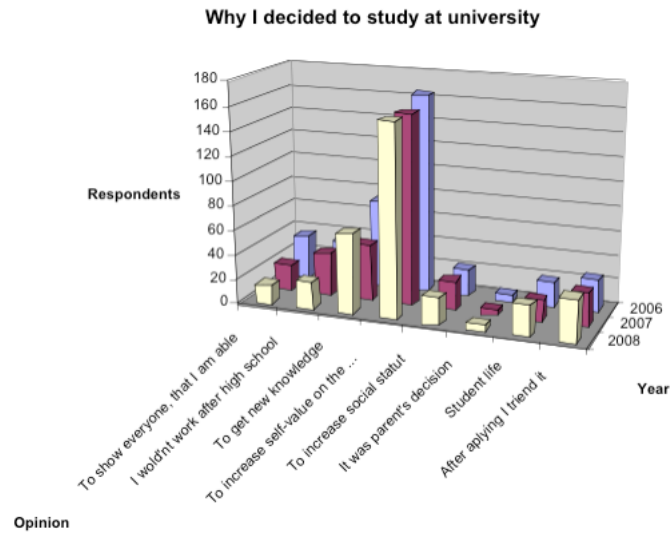
The questionnaire for new students has two parts. The first part is oriented on the success of the publicity. I noticed information about the faculty in:

- Newspaper – name:
- TV – channel:
- Radio – channel:
- Web
- Open door day
- Presentation at my high school

The second part is oriented on a student's decision>

- Why I decided to study at university. The mostly used answer in the last three years was "To increase one's self-value on the labor market", see Fig. 2.
- Why I decided for the Faculty of Mechanical Engineering.
- I decided for the study branch:

Fig. 2. Freshman opinion „Why I decided to study at university“



Reasons for Unsuccessful Students' Failure

To analyze the main problems in the first year of study, we have used a questionnaire for unsuccessful students. The main questions are:

- Study form (full time, part time)
- Why I have failed in the first year of study. The most frequent answer in the last two years (except “personal reasons”) was “Lack of study activity”, see Fig. 3.
- Which subject was the hardest? The most frequent answer in the last two years was “Math”, see Fig. 4.
- Would you apply for the university study again?
- Which faculty would you apply for?
- And why?

Fig. 3. Unsuccessful student's failure reason from the years 2007 (left) and 2008 (right)

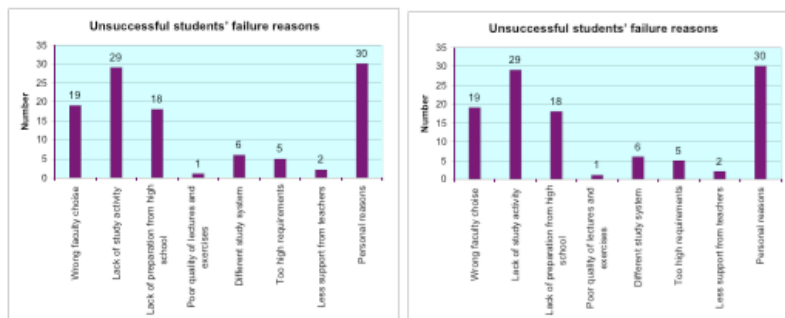
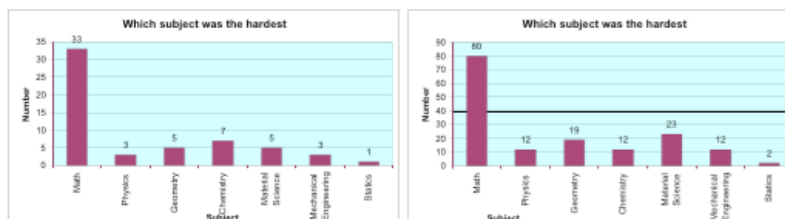


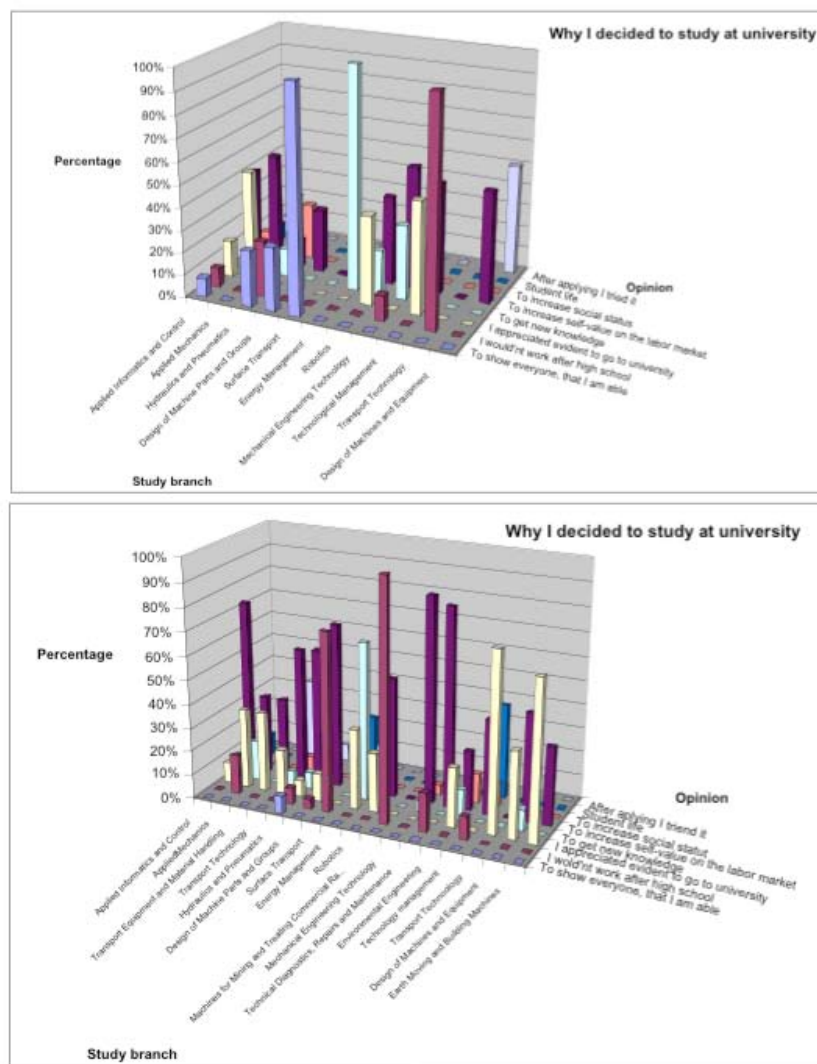
Fig. 4. Which subject was the hardest from the years 2007 (left) and 2008 (right)



Graduate Opinions and Assessment

The graduate opinion and assessment questionnaire has the same questions as the questionnaire for new students to compare the achieved results, see Fig. 5. For a detailed analysis of the data gained they are divided into the study branches.

Fig. 5. Graduate opinion „Why I decided to study at university“ from the years 2007 (top) and 2008 (bottom)



Comparison with Queen Mary University of London

Quality assurance approaches at QMUL

At the QMUL, the same as at all the higher education institutions in the United Kingdom, academic standards are established and maintained by higher education institutions themselves using an extensive and sophisticated range of shared quality assurance approaches and structures.

Standards and quality in institutions are underpinned by the universal use of external examiners, a standard set of indicators and other reports and by the activities of the QAA (Quality Assurance Agency) and in professional areas by relevant Professional and Statutory Bodies. This ensures that institutions meet national expectations described in the FHEQ (Framework for Higher Education Qualifications): subject benchmark (character) statements, the Code of Practice and a system of programme specifications. QAA conducts peer-review based audits and reviews of higher

education institutions with the opportunity for a subject-based review as the need arises. The accuracy and adequacy of quality-related information published by the higher education institutions is also reviewed.

Frameworks for quality management are informed by the following objectives:

1. high academic standards, as featured in:

- the academic level of courses and the award(s) to which they lead;
- the content of programmes and courses;
- the extent to which the aims and learning outcomes of programmes and courses are met.

2. a quality 'learning experience', as featured in:

- effective approaches to teaching and learning;
- interesting and relevant courses designed to develop students' knowledge, understanding or competence at the required level;
- the management of programmes and their individual components;
- support for students and staff from academic support services and the College's administrative infrastructure.

3. opportunities for student achievement, as featured in:

- formal assessment and student progression;
- student personal level of satisfaction during their studies;
- the achievements of graduates in securing employment on completion of their studies.

Principles underpinning quality assurance at Queen Mary

The objectives outlined above form a quality assurance framework that is underpinned by a set of principles:

1. responsibility and accountability

All staff is responsible for the assurance and enhancement of quality, as individuals and through their departments and faculties or divisions. Students themselves have a responsibility for quality through their representation on student-staff liaison committees and other committees of the College. There must also be clear lines of accountability. This is demonstrated in the process of self-monitoring, review and report that is one of the main characteristics of the College's quality assurance framework, within the College's committee structure and externally to the Higher Education Funding Council for England (HEFCE) and the Quality Assurance Agency for Higher Education (QAA).

2. communication

The requirements of the quality assurance process should be communicated to all staff via this Handbook; formal and informal advice and support is available from the Quality Assurance Unit. Decisions and requirements for action should be communicated clearly and quickly.

3. quality assurance as a process

Quality management is not sporadic but a continual process of reflection, evaluation, report and feedback. This process is framed within a college-wide system of agreed quality assurance procedures, specifications and pro-formas, the aim of which is to promote transparency and a shared understanding of the basic requirements. This shared understanding, together with coordination via the Quality Assurance Unit and senior officers should in turn promote consistency of standards and procedures.

4. quality improvement

Within the resources available, the aim should be to provide the best possible student experience and to foster quality improvement wherever possible. Good practice within the College – at departmental, faculty/division or college-wide level – and at other institutions should be shared. The College's quality assurance framework itself is subject to regular monitoring and review and aims to take account of changing needs within the College and the higher education sector.

5. the involvement of external peers

The involvement of external peers is vital in assuring and maintaining standards. External peers are involved in approval of new programmes, Internal Review and External Examining.

6. the views of students

Student opinion is key if quality assurance is a continual and “bottom-up” process which assures and improves academic standards, the learning experience and opportunities for student achievement. Students are represented on most major committees at Queen Mary, they participate in Internal Reviews and departments or programme areas are required to have in place mechanisms for obtaining student feedback.

Student Satisfaction Questionnaire

This is the example of the questionnaire focused on student satisfaction with individual subjects and teachers used in the QMUL, Department of Engineering, course of Physics in the year 2008.

This questionnaire allows students to critically assess a particular course and to comment on possible improvements. An analysis of the returns and comments on action to be taken by the academic staff are discussed by the Student-staff committee, which has the right to check the analysis of the initial returns.

Q1 Your Year? (Third Year of BSc)/(Third Year of MSci)/(Other:)

Q2 Tutorials

The object of the tutorials was to help consolidate simple physics ideas and train you in dealing with interviews.

Did you find the tutorials helpful? yes, very 5 4 3 2 1 no, not at all

Did you feel the tutor was well prepared 5 4 3 2 1 unprepared

Q3 We would like to know if you feel that the tutorials should be more aimed at training you for interview situations or for consolidating Physics knowledge:

Should the stress be more interview 5 4 3 2 1 physics

Q4 In the future we might try Directed Reading where you are given a chapter or section of a book to read and you are then asked pertinent questions about the material in the next tutorial:

Is your attitude to Directed Reading favorable 5 4 3 2 1 opposed

Q5 How might the tutorials otherwise be improved?

Q6 Use of the WWW

We are interested to know if students use the WWW home pages for courses to find information.

Did you use the Synoptic Physics Homes pages often 5 4 3 2 1 never?

Q7 Future Developments

As yet this course is study only. Please tick your advice for the future:

(1) Abandon the idea of this course, it's not worth it;

(2) Keep the course as a set of tutorials with no assessment or rewards;

(3) Develop into a full course (see next section) with assessment.

Q8 Future Material

In future years the course might develop further. Lectures could be introduced. If this were the case which are the best topics for inclusion? Tick your preferences:

(1) Problem Solving Skills;

(2) More Job Application Skills;

(3) Presentational Skills Training;

(4) Information Retrieval Skills.

Other Ideas:

Q9 Timing of the Course

Presently the course is given in the 5th semester for everybody. There are other possibilities. Tick your preference:

BSc Students Reply: 5th 6th Semester

MSci Students Reply: 5th 6th 7th 8th Semester

Q10 General

Compared to your other courses, was this one? very good 5 4 3 2 1 very bad

Q11 Please make overall general comments about this course together with any further ideas for improvement you may have:

Conclusions

Orientation on the system Total Quality Management has extended the Quality Management System by using more new possibilities. A great number of opportunities for improvement were identified in the orientation on the students and staff satisfaction. It was very surprising that the faculty did not consider staff needs and expectations in the decision making process, especially why the importance of the university staff is so high. Then the first achievements of applying the TQM system and the self-assessment process were oriented on improving university staff satisfaction. The next problem was missing the comparison between the results obtained by different faculties. Perhaps it is the problem of developing countries, and especially the Czech Republic, that we refuse all attempts to obtain an independent university assessment. Maybe we are apprehensive of the expected results and afraid of using the obtained results in the university financing process.

As a great contribution to the faculty management orientation on the complete quality system, I expect that the university will no longer be a closed system, but just the opposite, the university must very actively accept changes in the external environment. The university must especially observe, analyze, find out new solutions, and apply adequate changes in structure and management, and above all observe and verify the influence of our decisions. One of the principal features of the EFQM Excellence Model is the possibility of comparing the achieved results with other participants in the Program of the Czech Republic Quality Award, including industrial companies; it means our partners and also very important customers. Of course, we were very happy that we were declared as winner of the Czech Republic Quality Award for the year 2007.

These external evaluations show that the orientation on applying the TQM system at our university and faculty is successful and gives us new sources for our advancement.

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