

# Teaching Quality Management at the Course Level

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## Summary

*This paper presents quality assurance systems used in the countries of the world and presents processes for internal and external quality assurance in institutions of higher education. By analysis of existing systems for control of the quality of teaching, it has been found that all observed the quality of teaching only to the course level. The central part of this paper presents developed model for quality management at the course level that is based on continuous assessment during semester. Evaluation is conducted at the level of individual teaching topic using on-line questionnaire. The model presents a way of statistical analysis of the results obtained by evaluation of teaching quality. This has enabled improvement in teaching practices within each individual teaching topic, as well as the improvement of the entire course. Based on the model presented in this paper, researchers created on-line quality management system.*

**Key words:** quality management, quality control, higher education, course, teaching topic

## Introduction

In last two decades higher education has been rapidly expanding in the number of institutions. By creating Bologna process European countries are trying to harmonize their higher education system to be comparable between different universities and different countries.

One of major requirements of Bologna process is promotion of student mobility, which implies that student can listen part of his study programme as guest student at the foreign university. To create network of universities of comparable quality it is necessary to develop efficient quality management systems that will ensure models for measuring and managing quality of teaching. (Husbands, Fosh, 1993)

### **Quality Management Models**

Quality is by definition the extent to which a product or service meets a complex requirements. It ensures that product or service is designed and manufactured to meet customer requirements.

Quality in higher education ensures that educational service has been designed and conducted by the requirements set by society. Different societies have different needs, so we cannot speak of quality management system which could be globally acceptable, rather every country should create its quality management system which best suite its needs.

Generally quality management can be divided into basic two quality management levels: internal quality management and external quality management.

Internal quality management enables institution to independently control and improve quality without external pressure.

External quality management is usually conducted by official state agencies which try to manage quality of teaching at state level. Their main objective is to assure that all universities fulfill minimal quality conditions set by state. (Brennan, Shah, 2000)

Because of wider extent, external quality control is usually conducted every several years so it is relatively slower than internal quality management which usually has shorter quality management cycle. Internal quality control surveys are usually conducted at the end of semester, so that only future generations of students can experience improvement of teaching which resulted from conducted quality control survey. (Marsh, 1987) It would be beneficial to use quality management with shorter cycle because it would enable quality improvement during semester.

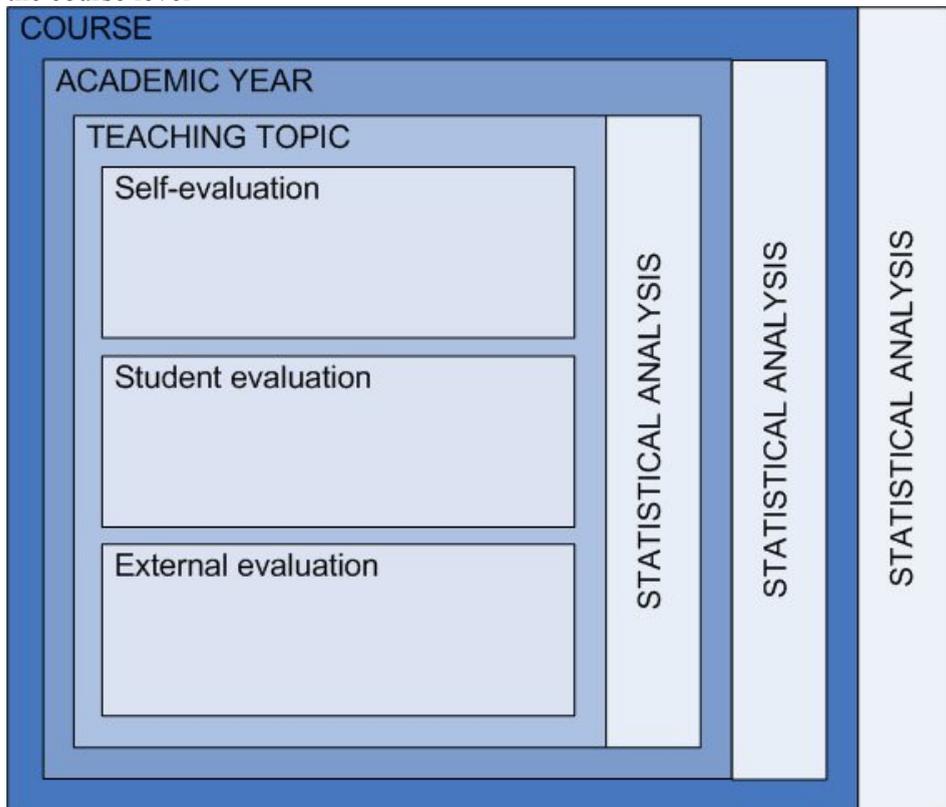
### **Course Quality Management Model**

Theoretical model of quality management at the course level advocates quality control at the lowest level, which is the level of teaching topic. It is a dynamic quality control, which allows improvement of teaching practices during course execution within the same academic year. This represents great progress over the existing models which do not carry out quality control during the semester, but only at the end of the semester, allowing students to miss the improvement in the quality of teaching, because the improvements can only be made in the following academic year.

This model is based on three groups of evaluators: teachers, students and external evaluators. All three groups fill the same quality control survey which enables the comparability of results obtained from different evaluator groups. Valuable information can be gained from comparison of self-evaluation surveys, student surveys and external surveys, because sometimes teacher's self-perception and student perception of teaching can be very different.

Statistical analysis of collected data provides valuable information for quality management. It is possible to compare quality of topics lectured during current semester which can show us current trend in quality of teaching during current semester. Since all topics during semester aren't equally attractive to students this should only be used for estimating trend in quality of teaching. Model fills this gap by enabling comparison of topic lectured this year with survey results from the same topic from previous years. This is good indicator for improvement in quality of teaching, because these topics are equally attractive, and can easily be compared.

Figure 1. Logical structure of the model for managing the quality of teaching at the course level



Good teaching quality management should always provide students with feedback. That motivates students to continue to help improvement of quality by providing objective and constructive answers in quality control surveys. Existing quality management models face great difficulties because of lack of good communication strategy and students are often very demotivated because they don't see the point in participation in quality control surveys if their opinion is not respected and implemented in teaching practice. This model recommends that teachers publish results of their quality control surveys to students, so they can be active participants in quality improvement process. This model also enables students to enjoy improvement in quality of teaching during semester which should motivate them for further participation in surveys.

## Academic Quality Management System

Theoretical model of quality management at the course level is practically realized in the form of web application that allows teachers to manage quality of their courses. The system can be found at following web address:

<http://infoz.ffzg.hr/quality/>

Figure 2. List of teaching topics within a particular course

The screenshot displays the AQMS (Academic Quality Management System) web application. The interface is in Croatian and features a blue header with the AQMS logo and the text "Sustav za Kontrolu kvalitete nastave". Below the header is a navigation menu with tabs for "Naslovnica", "Statistika", "O projektu", and "Odjava".

The main content area is titled "Popis nastavnih tema" (List of teaching topics). It contains a table with 13 rows, each representing a teaching topic. Each row has four columns: the topic name, "Izmijeni" (Edit), "Obriši" (Delete), and "Dolje" (Down). The topics listed are:

Topic	Izmijeni	Obriši	Dolje
1. Uvodno predavanje	Izmijeni	Obriši	Dolje
2. Rad s tablicama	Izmijeni	Obriši	Gore Dolje
3. Upiti	Izmijeni	Obriši	Gore Dolje
4. Forme	Izmijeni	Obriši	Gore Dolje
5. KOLOKVIJ	Izmijeni	Obriši	Gore Dolje
6. Osnove web dizajna	Izmijeni	Obriši	Gore Dolje
7. Osnove .Net programiranja	Izmijeni	Obriši	Gore Dolje
8. Izrada web formi za prikaz podataka	Izmijeni	Obriši	Gore Dolje
9. Izrada web formi za ažuriranje podataka	Izmijeni	Obriši	Gore Dolje
10. Izrada formi za prikaz podataka	Izmijeni	Obriši	Gore Dolje
11. Izrada formi za ažuriranje podataka	Izmijeni	Obriši	Gore Dolje
12. KOLOKVIJ	Izmijeni	Obriši	Gore Dolje
13. Teorija baza podataka	Izmijeni	Obriši	Gore

Below the table, there is a link "Dodaj novu nastavnu temu" (Add new teaching topic).

The left sidebar contains navigation options: "Osnovna navigacija" (Basic navigation) with links for "Izmjena podataka o nastavniku" (Change teacher data), "Popis kolegija" (List of courses), "Izbor akademske godine" (Select academic year), and "Popis nastavnih tema" (List of teaching topics); "O sustavu" (About the system) with a description of the system's purpose; and "Pomoć" (Help) with a note about user registration.

The footer contains copyright information: "© 2008 Ana Pongrac & KrPa | Design by: styleshout | Valid XHTML | CSS" and links for "Home", "Sitemap", and "RSS Feed".

Anyone can use the system free of charge. The system allows high level of privacy protection for students and teachers. Students are absolutely anonymous in completing the survey and teachers are given the choice whether they wish to publish the results of assessment of the quality of teaching.

Student anonymity improves objectivity of their answer in conducted survey. (Leckey, Neill, 2001) Academic Quality Management System have built in safety mechanisms that can prevent same student to fill same survey several times and that way impair collected results. One of methods allows only one access to survey in certain period of time i.e. 30 minutes from same IP address. Other method allows teacher to randomly distribute to students anonymous access codes which can be used to fill survey only once. There is also option to allow access only after authentication where system provides total anonymity for students, but students are little skeptical about anonymity so it can affect objectivity of their answers.

Figure 3. Editing of teaching topic

The screenshot shows the AQMS interface. The main content area is titled 'Uređivanje nastavne teme' (Editing teaching topic). It contains a form with the following fields and buttons:

- Naslov teme:** Uvodno predavanje
- Buttons:** Prihvati, Odustani

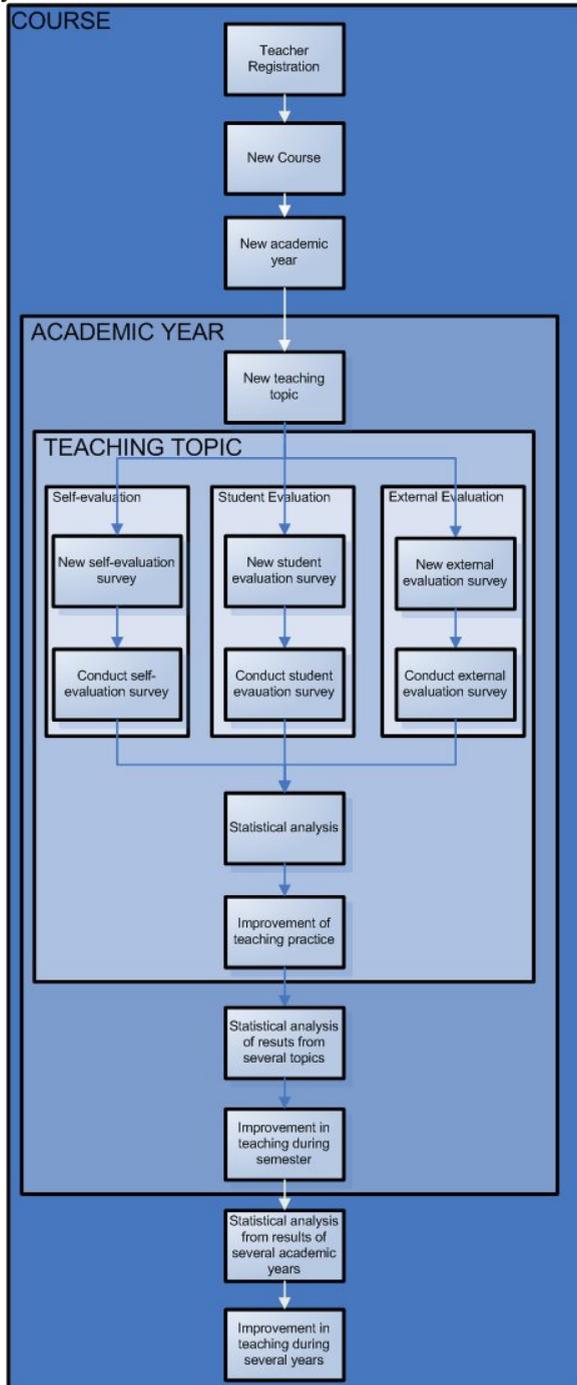
Below the form, there are sections for 'Samoprocjenjivanje' (Self-assessment), 'Studentsko procjenjivanje' (Student assessment), and 'Eksterno procjenjivanje' (External assessment). Each section has a 'Dodaj novu anketu' (Add new survey) button and 'Izmijeni' (Edit) and 'Obriši' (Delete) buttons.

The 'Statistika' (Statistics) section shows a dropdown menu for 'Studenti su potaknuti aktivno sudjelovati u nastavi' (Students are encouraged to actively participate in teaching) and a 'Prikaži' (Show) button. Below this is a table with the following data:

	N	Prosjek	STDEV
SAMOPROCJENJIVANJE	2	3,50	2,12
STUDENTSKO PROCJENJIVANJE	6	2,00	0,89
EKSTERNO PROCJENJIVANJE	1	5,00	0,00
UKUPNO ZA OVO PITANJE	9	2,67	1,07

To use Academic Quality Management System teachers need to fill simple on-line registration form. Every teacher can participate in one or more courses. Teacher can add a course in which he lectures. After adding a course, the teacher adds a new academic year in which the course is teaching. Within academic year teacher needs to define teaching syllabus by simply listing teaching

Figure 4. Flow diagram of available activities when using the Academic Quality Management System



topics. Teaching syllabus can be changed from year to year but existing quality control data won't be lost, so that it is easy to compare results to previous years. Teacher can create several surveys within same teaching topic. This allows teacher to monitor quality in several student groups, or to conduct self-assessment before and after teaching certain topic.

Academic Quality Management system uses official quality control survey questions used at the University of Zagreb. The survey consists of 20 questions that examine various aspects of quality of teaching and an open field in which it is possible to write a comment.

It is possible to compare results gained from different sources. By comparing results gained from self-assessment, student assessment and external evaluation, teacher can view wider picture of his quality of teaching. Figure 3 shows teaching topic edit form where teacher is presented with basic statistical variables for every question in a conducted survey: number of respondents, arithmetic mean value and standard deviation.

## Conclusion

Major problem with existing quality management models is long quality control period, where surveys are usually conducted at the end of semester. Because of this, it is only possible to improve teaching for next generation, but unfortunately not for current generation of students.

Another commonly found problem in existing quality control models, where quality is improved from generation to generation, is that students rarely receive any feedback about actions taken to improve the quality of teaching that would show them that their suggestions are implemented in teaching practice.

Presented quality control model at the course level advocates quality control at lowest level – teaching topic. By conducting surveys after every topic it is possible to improve quality during semester so that present generation of students can enjoy benefits of quality improvement. This also improves student motivation for objective assessments because they receive continuous feedback and can observe improvement in quality of teaching.

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