

# Using Student Feedback in Measuring the Quality of Teaching in Higher Education

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**Abstract** – European standards for quality assurance in higher education define important role of students in quality assurance process. As students are directly involved in teaching process, their perception of teaching process quality could be used as one of the valuable indicators for measuring the quality of teaching. Students' opinions about various aspects of teaching process are collected using evaluation instruments. One way of getting feedback about teaching process quality is evaluation using students' questionnaires in paper or online form. This paper describes some practical experiences and results in students' evaluation of teaching quality at University of East Sarajevo, Faculty of Electrical Engineering.

**Keywords** – quality, assurance, higher education, evaluation, teaching.

## I. INTRODUCTION

Quality assurance plays important role in higher education. In order to retain and improve their position at the educational services market, institutions of higher education need to pay close attention to the quality of their services. One of the processes that is crucial for improving overall quality is a teaching process. Measuring teaching process quality involves getting information about various aspects of teaching process and usually includes measuring quality of teachers, quality of individual course units, and quality of complete academic programmes.

According to the published literature on this subject, there are many instruments used for measuring quality indicators in higher education, [1], [2], [3]. Some of them are focused on measuring quality of individual course units and teachers, while others tend to provide information about quality of complete academic programmes or institutions. One common thing for both of the mentioned types of instruments is that they are mainly used for getting feedback from students in order to get information about students' perception of various aspects of teaching process. As students are directly involved in teaching process, their evaluation of teaching quality plays very important role in measuring overall teaching quality.

This paper describes an instrument for measuring teaching quality that is developed and used at University of East Sarajevo, Faculty of Electrical Engineering, from the academic year 2006/07 to the present day. The paper presents

some practical experiences and results using the instrument at Faculty of Electrical Engineering.

## II. INSTRUMENTS FOR GETTING STUDENT FEEDBACK

Students' role in measuring teaching quality is a well known and established in some regions in the world. This is especially true for North America and Australia, where standardized and proven instruments are used for getting students' feedback, like SEEQ (Student Evaluation of Educational Quality) and CEQ (Course Experience Questionnaire).

One of the best developed and most widely used student feedback questionnaires in the USA is the SEEQ [4]. Unlike instruments such as CEQ the SEEQ is not based on student learning research but on psychometric analysis. A consequence of this is that while the constructs underlying the SEEQ are less well supported by learning theory, the psychometric characteristics of the questionnaire are developed to a high degree. The intellectual rights and copyright in the SEEQ belong to Professor Herbert W. Marsh of the University of Western Sydney, Macarthur. There is a series of publications describing research, methodologies and the SEEQ instrument, [5], [6], [7], [8]. The intellectual rights and the copyright in the CEQ belong to Professor Paul Ramsden, the Graduate Careers Council of Australia and the Australian Commonwealth Department of Education, Training and Youth Affairs. The CEQ instrument is widely accepted at Australian universities. It is also adopted for the other purposes different from the original one, with some modifications and additions according to requirements and the application, as described in [9], [10].

In the European higher education area students' role in quality assurance is defined in Standards and guidelines for QA, published by European Association for Quality Assurance in Higher Education (ENQA). Many higher education institutions have developed their own instruments for getting feedback from students, but there is not much published research evidence on proven reliability and validity of results of using these instruments like it is the case with the SEEQ and CEQ.

Students' role in measuring teaching quality is important for the several reasons [6]:

- Diagnostic feedback to teachers about the effectiveness of their teaching,
- A measure of teaching effectiveness to be used in administrative decision making,
- Information for students to use in the selection of course units and teachers,

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- An outcome or process description for use in research on teaching.

Traditional way of getting students' feedback is by using paper forms with a list of statements to which students indicate their level of agreement. The statements are chosen to appropriately reflect various aspects of teaching. The level of agreement is mostly indicated using five point scale with descriptive optional answers, like "Strongly agree" to "Strongly disagree", or similar scales that enable paper forms to be scanned and processed for getting results. The paper forms are distributed to students participating the evaluation usually in two ways. One is the class environment where students are asked to fill out the questionnaires and return them immediately. The other way is sending questionnaires to students by classical postal system and expecting them to return them in the same way. However, when larger groups of students are involved in the evaluation, this means of getting students' feedback becomes time-consuming and inefficient when it comes to collecting and processing results.

An alternative solution to traditional one mentioned earlier became available with the increased use of information technologies in higher education. The paper form questionnaires are transformed into the online forms with the similar content. In this way results are automatically stored into electronic form suitable for further processing and analysis. The online questionnaires have many advantages over the traditional ones. The main advantage is improved efficiency. A few examples of instruments for online evaluation are described in [9], [10], [11].

### III. METHOD AND THE EVALUATION INSTRUMENT

Students' evaluation of teachers and course units at University of East Sarajevo, Faculty of Electrical Engineering, was formally introduced in 2002. At first, the traditional way of getting students' feedback was used. At the end of each semester, during the evaluation period of two weeks, students filled out a printed questionnaire which contained statements and questions for evaluation of teaching quality of individual teachers and quality of individual course units in the current semester. Students are required to respond to statements and questions using predefined answers in the form of rates from 5 to 10, or using Yes/No answers. It was also possible to write a free comment for every teacher or course unit in the questionnaire. The scale 5 to 10 is selected because the same scale is used in local higher educational system for rating students at exams and assessments.

This form of students' evaluation was used for several years and achieved positive results with respect to getting feedback from students about their perception of teaching process quality. However, this means of getting students' feedback shown itself as inefficient and very time-consuming when it comes to processing and analyzing results. Since all of the active students are required to fill out the questionnaire at the end of each semester, there was significant number of paper forms to be manually sorted and processed in order to get the results. The sample size was usually about 200 to 250 active students involved in the four year undergraduate programme. Every student had to evaluate teaching performance of each

teacher and for each course unit in the semester. Even with the relatively small sample, the work that had to be done for processing the results was significant and could not be done in the short time. This was the main reason for initiating development of application for online evaluation of teaching quality.

The application for online evaluation of teaching quality was developed in the form of multi-user web application. It enabled students to fill out online questionnaires having similar content to the traditional ones, but it also enabled students, teachers and administration to see the results of students' feedback. The application could be accessed from any place equipped with Internet connection by using standard web browser.

The online questionnaires used four scales for evaluation of course units and teachers, overall students' course satisfaction and evaluation of institution's resources used as a support for teaching. Scale for evaluation of course units and teachers consists of three questions with Yes/No answers and a free comment field, while scale for evaluation of teachers consists of eight statements which are rated on the scale from 5 to 10 and one free comment field. Scale for rating overall students' course satisfaction and scales for rating each of the institutional resources used for supporting teaching consist of one statement with rates from 5 to 10 and a free comment field.

The application was developed using open source technologies on the LAMP platform (Linux, Apache, MySQL, PHP). One of the main reasons for choosing these technologies was their free availability, no additional financial expenses for software licenses. The other important reason was the existing information system used at University of East Sarajevo and all of its organizational units. The DBMS used in the information system was also MySQL. The application uses much of the existing data from the existing information system, especially data about students, teachers and course units.

### IV. RESULTS

Since the beginning of use in second semester of academic year 2006/07, the application collected feedback from 1015 students about 86 individual teachers and 172 individual course units. The overall sample size was 1226 students and overall response rate is 82.79%. Response rates in specific academic years and semesters are given in Table I.

TABLE I  
RESPONSE RATES THROUGH ACADEMIC YEARS

Academic Year	Semester	Sample	Response	Response rate
2006/07	2	208	186	89.42%
2007/08	1	236	215	91.10%
2007/08	2	170	115	67.65%
2008/09	1	186	155	83.33%
2008/09	2	186	144	77.42%
2009/10	1	240	200	83.33%

### A. Students' Reflections on Using the Instrument

Using the instrument was considered convenient by most of the students. They were not limited to time and place for filling out the questionnaire, instead they could do it any time during the evaluation period from the privacy of their homes or other places having Internet connectivity. They were not under pressure to fill out questionnaires in the class environment, so they felt more comfortably. Response rates shown in Table 1 are well above response rate of 50% that is mostly considered to be a minimum value for accepting results as representative from the given sample [1].

One negative impact on using the instrument was a small level of skepticism about staying anonymous in the process of electronic evaluation. Since the students used their students' ID and a password to access online evaluation system, some of them suspected that this ID is used to track their responses and they were afraid of having negative consequences on their future studies in the case they respond in negative context to some statements or questions for evaluating teachers. Of course, this was not the case, the instrument used students' IDs for getting information about course units and teachers associated with the course units for the particular student. In order to eliminate negative impact of this issue on response rates and response grades, the process of authentication is changed in the new version of application.

### B. Teachers' Reflections on Using the Instrument

Teachers' reflections on the instrument were generally positive. In some minor number of cases they greatly depend on the results obtained from the students' feedback. Some teachers complained that students are not competent to evaluate their work, or some said that teachers' rates depend on the course unit complexity.

One of the most important advantages of using this instrument, as with the other similar instruments for getting students' feedback about teaching quality, is the process of self-regulation. Students' perception of teaching quality helps teachers to improve quality of their teaching. Since the teachers are able to see results of students' evaluation for the other teachers, they are additionally motivated to give their best in teaching process and compete with other teachers in order to get higher ratings.

### C. Improving Quality of Teaching

Students' evaluation of teaching quality is not by itself enough to improve teaching quality. Having a collection of students' evaluations of teaching quality doesn't guarantee the quality improvement. This could be true for the several reasons, but one of the most important is lack of institutional policies that regulate interpretation, analysis of results and necessary actions based upon results of evaluation in order to improve quality. As with students' evaluations of teaching using SEEQ instrument, there is little evidence that the collection of student feedback using the CEQ instrument in

itself leads to any improvement in the perceived quality of programmes of study [1].

In the case of University of East Sarajevo, in the present situation there is no procedures defined for acting upon results of students' evaluation of teaching quality. The only influence on quality is done by the process of self-regulation. Teachers with lower ratings can identify segments of their work that are to be improved in order to improve teaching quality. The same applies to individual course units and the other elements of teaching process that are subject to evaluation. As quality assurance in higher education is becoming more and more important in Bosnia and Herzegovina and the region, it is likely that the institutional policies will very soon incorporate appropriate mechanisms for taking into account results obtained by students' evaluations of teaching quality.

Fig. 1 shows trend of overall course satisfaction of students over the several years and semesters. The ratings are displayed on a scale from 5 to 10.

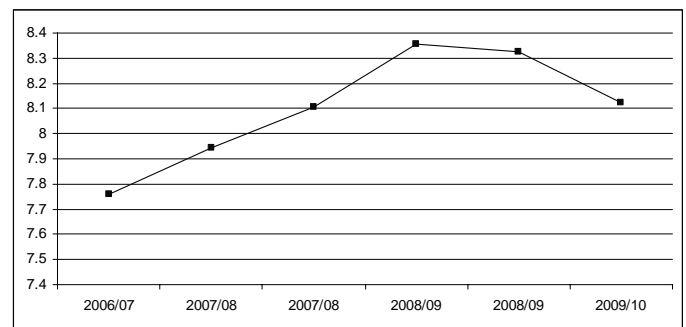


Fig. 1. Trend of students' overall course satisfaction

Based on results shown in Fig. 1 it could be concluded that the students' overall course satisfaction has positive trend from second semester of academic year 2006/07 to second semester of academic year 2008/09. Next two evaluations resulted in small negative trends. The results shown could be interpreted as a quality improvement, but there is no evidence that this is due to some actions taken in order to improve quality. Results of all students' evaluations are stored in a database and can be accessed in order to analyze trends of specific quality indicators. Since the application is in function from the second semester of academic year 2006/07 there is not enough data to establish long term trends of quality indicators. This is especially true for evaluation of teachers.

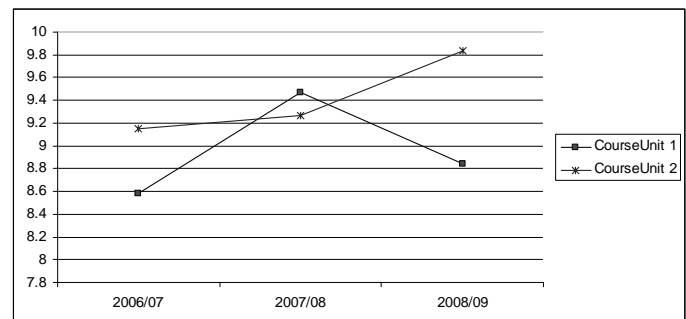


Fig. 2. Trend of teacher's ratings for two course units in the second semester

Fig. 2 shows trends of overall teaching performance of randomly selected teacher on two course units for the second semester in academic years 2006/07, 2007/08 and 2008/09.

Fig. 3 shows trends of overall teaching performance of the same teacher on two course units for the first semester in academic years 2007/08, 2008/09 and 2009/10.

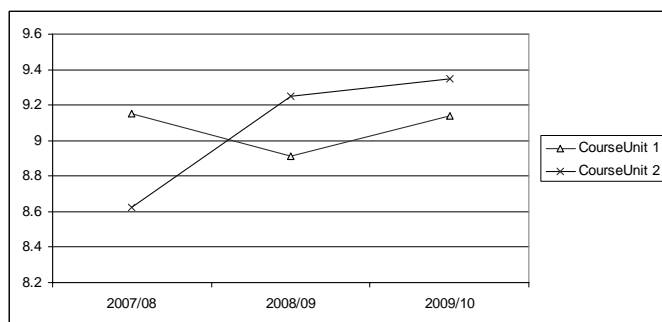


Fig. 3. Trend of teacher's ratings for two course units in the first semester

## V. CONCLUSION

The instrument used for measuring the quality of teaching at University of East Sarajevo, Faculty of Electrical Engineering has many benefits when compared to the previous methods of obtaining students' feedback. The main benefit is its efficiency in getting students' responses and processing results. In the previous solution using traditional means of getting feedback from students it took weeks to collect, process and publish results of the students' evaluation of teaching quality. Using the new instrument for online evaluation this time is greatly reduced and completely eliminated. In the end of evaluation period results are already available and ready for publishing and analysis. Partial results could be available even during the evaluation period.

Another important benefit is the availability of results of evaluations in electronic form which is convenient for further processing and analysis. Based on the results from the previous evaluations one could conclude about trends of specific quality indicators. This way it could be detected if the evaluation is having impact on the quality improvement.

The results could also be aggregated and transformed in form convenient for advanced reporting and analysis which is required for administration staff as a support for decision making. Using OLAP tools data could be analyzed through different dimensions by persons with limited IT expertise.

New model of the application that is used as evaluation instrument is currently in the development phase. It should improve some of the identified limitations of the existing application in order to use it at the University level. By using the application the University management will have more detailed insight in teaching quality indicators when compared to current solution which is very limited. This model should offer enough flexibility in order to apply it on the other similar institutions having different organizational scheme. It will offer integration with other existing proprietary systems for the purpose of using the existing data where the required data is already available.

For the better success of the students' evaluation of teaching quality it is necessary to motivate relevant population of students and to achieve high response rates. Students should be aware that their response will be considered and taken into account and they can improve their courses by being more involved in the process of quality assurance.

Teachers also have to be motivated to react in response to students' evaluation. Self-regulation is not always sufficient and higher education institutions should take more care about defining relevant policies and procedures in order to improve overall teaching quality.

## REFERENCES

- [1] Richardson, J. T. E., "Instruments for obtaining student feedback: a review of the literature", *Assessment & Evaluation in Higher Education* Vol. 30, No. 4, pp.387-415, 2005.
- [2] McInnis, C., Griffin, P., James, R., Coates, H., "Development of the Course Experience Questionnaire (CEQ)", Centre for the Study of Higher Education and Assessment Research Centre, Faculty of Education, The University of Melbourne, 2001.
- [3] Hung, W., Smith, T. J., Harris, M. S., Lockard, J., "Development research of a teachers' educational performance support system: the practices of design, development, and evaluation", Association for Educational Communications and Technology, 2007.
- [4] Coffey, M., Gibbs, G., "The Evaluation of the Student Evaluation of Educational Quality Questionnaire (SEEQ) in UK Higher Education", *Assessment & Evaluation in Higher Education*, Vol. 26, No. 1, 2001.
- [5] Marsh, H. W., "A Longitudinal Perspective of Students' Evaluations of University Teaching: Ratings of the Same Teachers over a 13-Year Period", Paper presented at the Annual meeting of the American Educational Research Association, San Francisco, CA, 1992.
- [6] Marsh, H. W., "Students' Evaluations of University Teaching: Research Findings, Methodological Issues, and Directions for Future Research", *International Journal of Educational Research*, 11, pp.253-387, 1987.
- [7] Marsh, H. W., "Students' Evaluations of College/University Teaching: A Description of Research and an Instrument", Annual Meeting of the Australian Association for Research in Educational, Sydney, Australia, 1980.
- [8] Beatty, B., Marsh, H. W., "Students' Evaluations of Instructional Effectiveness: Research and a Survey Instrument", University of California, 1974.
- [9] Tucker, B., Jones, S., Straker, L., Cole, J., "Course Evaluation on the Web: Facilitating Student and Teacher Reflection to Improve Learning", *New Directions for Teaching & Learning*, Issue 96, pp.81-93, 2003.
- [10] Tucker, B., Jones, S., Straker, L., "Online student evaluation improves Course Experience Questionnaire results in a physiotherapy program", *Higher Education Research & Development*, Vol. 27, Issue 3, pp.281-296, 2008.
- [11] Harrington, C. F., Reasons, S. G., "Online Student Evaluation of Teaching for Distance Education: A Perfect Match?", *The Journal of Educators Online*, Volume 2, Number 1, 2005.