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Comparative Study Based on Quality Indicators of Academic Activities

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Abstract: During the process of quality assurance in education, three subjects are in focus: institutional capacity, educational effectiveness and quality management. Evaluation of the three aspects is done using criteria and standards expressed by performance indicators. Performance indicators are tools for measuring the performance of the university's work in relation to standards. These indicators can vary from the minimum level to the highest. The aim of the paper is to analyze how a quality indicator has evolved, which is related to the evaluation by the university management. Starting from the minimum standards set out in the job description, the percentage of their performance will be determined on the basis of the teachers' annual self-evaluation for the last 10 years. The study focuses on teaching and research on the one hand and managerial activities on the other. Also, on the basis of the analyzed results, we will see what the evolution trend is for the next years.

Keywords: University management, Job description, Quality indicators

Introduction

In the recent years, quality has become a higher education priority in universities. The changes in the labor market, an increase in the number of public or private universities and the development of new curricula and specializations determine employers to request validated official information on the quality of education in the target institutions.

The official recognition is reflected by the accreditation obtained by a university. The National Agency authorized to grant accreditation performs the external evaluation of the quality of the educational process by complying with the existent criteria.

According to "The Methodology of External Evaluation, Standards and the List of Performance Indicators of ARACIS" (http://www.aracis.ro/), during the quality assurance process, three issues are under discussion: the institutional capacity, the educational efficiency and the management of quality.

The assessment of these three aspects is performed using criteria and standards expressed by performance indicators. The criteria are the basis of the organization and functioning of the educational institution. The performance indicators are tools for measuring the realization of the activity carried out by the university. These indicators may range from the minimum level to the maximum one.

Teaching Staff Assessment

The evaluation criteria mentioned above are summarized in an evaluation sheet that includes information from four topics: self-evaluation, peer review, student assessment and evaluation of head department.

The self-assessment sheet is drawn up annually and represents a multi-criterion assessment of all teaching and research activities covered in the previous calendar year. The self-evaluation sheet includes two parts:
A. Criteria for assessing didactic and research activities and promotion criteria,
B. Other criteria (professional, administrative, cultural).
Criteria sets A and B are the basis for granting the performance rewards (http://www.qa.ugal.ro/).
Completing and presenting the self-assessment sheet according to the deadlines shows that the entire teaching staff has acquired and developed a culture of quality according to the requirements of a total quality management.

At the same time, the criteria of the teacher self-evaluation sheet imply the achievement of standards in the job description. This sheet contains: scores for assessing the teaching and related activities and scores for assessing the scientific research and technological development activities.

The paper aims to study the evolution of the scores recorded for the criteria in the self-evaluation sheet of the teachers from two technical faculties in parallel with the scores imposed by the job description. Also, taking into account the results, developments for the following years will be predicted for these scores.

Recorded Data

For this study the average scores of each teaching staff category from two technical faculties were considered. The scores were normalized so that the number of teachers (time-varying) should not distort the study.

The average scores of each teaching staff category from two technical faculties (using criterion A) are presented in Table 1.

Table 1. Average scores of self-evaluation records – Criterion A

Year	Technical faculty 1				Technical faculty 2			
	Prof.	**As.prof.**	**Lecturer**	**Assist.**	**Prof.**	**As.prof.**	**Lecturer**	**Assist.**
2009	1304.87	825.00	543.39	289.98	1068.76	337.38	182.17	173.73
2010	2021.07	822.75	610.28	457.68	1902.62	925.18	334.43	466.60
2011	1849.88	923.13	732.14	456.47	1962.90	1116.30	324.80	145.50
2012	1613.29	1000.40	708.81	712.82	2137.18	976.29	548.15	670.64
2013	1139.90	462.64	474.38	327.47	1844.47	770.24	687.98	297.19
2014	1228.53	762.35	492.82	381.20	2193.01	606.93	782.28	455.18
2015	1074.19	791.55	485.31	437.24	2307.80	968.69	806.82	274.09
2016	1184.28	784.38	484.82	515.00	2307.99	1230.81	768.41	350.53
2017	1634.43	562.42	507.00	1072.93	2816.65	1460.47	983.30	1303.44
2018	1875.36	705.25	866.93	446.7	1813.99	1570.63	1141.67	600.87

In Figures 1 and 2 is observed as the scores made by teachers from the two faculties generally exceed the minimum score required by the job description. The percentage of scores in self-assessment sheet versus the maximum required by the job descriptions for professors and assistants are showed in Figures 3 and 4.

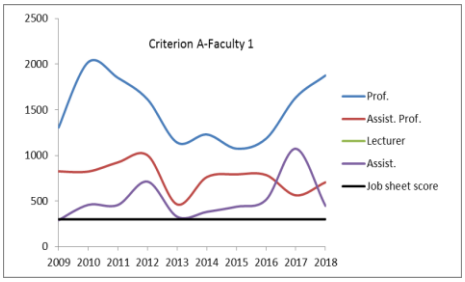

Figure 1. Scores of self-assessment sheet criterion A for faculty 1

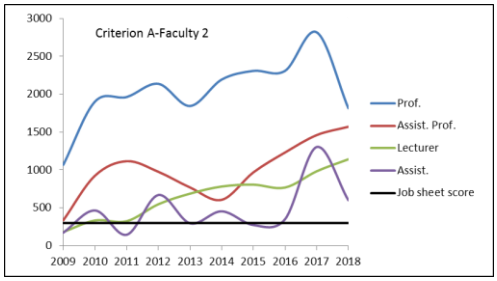

Figure 2. Scores of self-assessment sheet criterion A for faculty 2

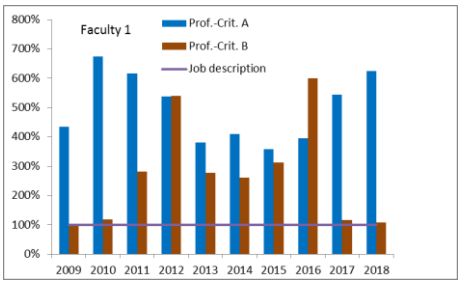

Figure 3. The percentage of scores for A and B criteria for professors - faculty 1

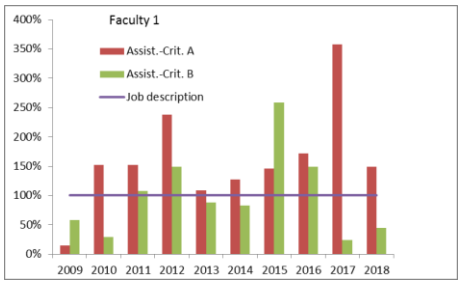

Figure 4. The percentage of scores for A and B criteria for assistants - faculty 1

The average scores of each teaching staff category from two technical faculties (using criterion B) are presented in Table 2.

Table 2. Average scores of self-evaluation records – Criterion B

Year	Technical faculty 1				Technical faculty 2			
	Prof.	**As.prof.**	**Lecturer**	**Assist.**	**Prof.**	**As.prof.**	**Lecturer**	**Assist.**
2009	308.14	127.50	144.02	175.06	318.81	169.07	180.38	160.85
2010	355.55	201.29	171.23	87.48	370.17	227.17	182.14	219.25
2011	847.33	565.25	177.53	322.60	981.3	274.80	183.30	265.00
2012	1619.70	769.76	309.17	446.79	1602.47	330.70	274.92	245.84
2013	835.38	315.75	320.90	263.98	625.10	153.33	260.42	168.25
2014	780.43	206.43	293.30	250.17	659.01	211.21	310.92	256.57
2015	935.47	157.19	201.78	775.05	796.40	281.38	789.58	299.63
2016	1799.71	230.66	295.98	448.00	965.33	572.50	222.61	332.75
2017	348.90	143.27	190.58	70.75	481.49	262.92	267.40	222.13
2018	321.77	137.16	228.87	133.75	370.23	199.97	240.61	325.25

In Figures 5 and 6 it can be noticed that the scores made for criterion B by teachers and lecturers in the two faculties exceed in general the minimum score imposed by the job description, while the lecturers and assistants are below the score in the job sheet. The explanation is that the latter, being more concerned with developments in the teaching career, becoming more involved in scientific research.

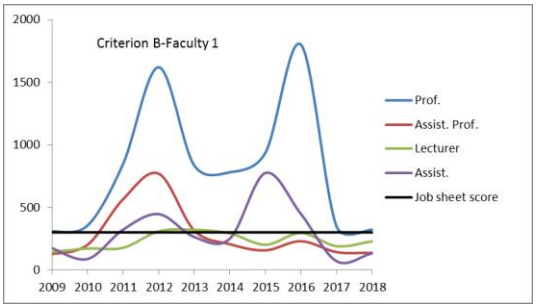

Figure 5. Scores of self-assessment sheet criterion B for faculty 1

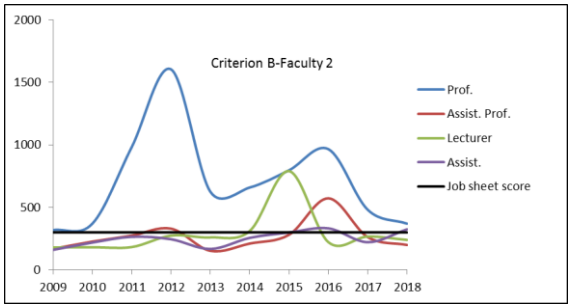

Figure 6. Scores of self-assessment sheet criterion B for faculty 2

Research Method

A statistical instrument was used as research method: the moving average (Biji, 2012). This method was used to analyze the collected data between 2009 and 2018. The annual scores were systematized and thus time series were generated.

The moving average method consists of calculating the seasonal component of time series by dividing the trend to total successive values of the series. The method is used when a time series shows fluctuations, in order to smooth the evolution. The moving average method aims at highlighting the central tendency of evolution of a phenomenon. The method is characterized by elasticity, the ability to easily adjust to new conditions. Using regression the basic trend of evolution of the studied phenomenon is established, by cancelling large fluctuations, which may distort real evolution.

The averages are called mobile because constantly the first term of the previous average is deleted, while the next term is added. Thus, based on average annual recorded scores from self-assessment files, criterion A, seasonal component, irregular component and the trend component were calculated and the combination of them determined the forecast for the next three years (Veresiu, 2017).

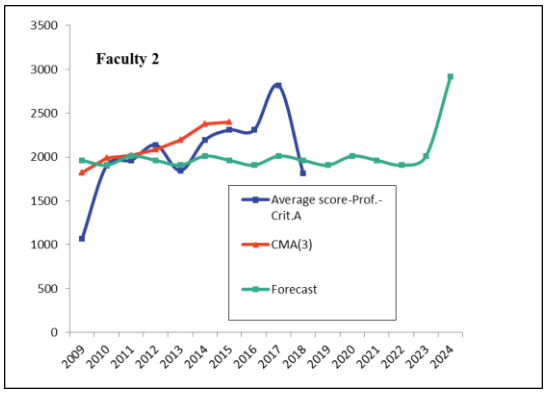

Figure 7. Forecast of professors' average scores criterion A for faculty 2

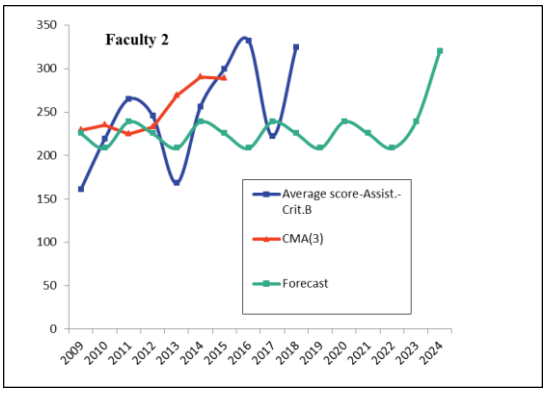

Figure 8. Forecast of assistants' average scores criterion B for faculty 2

The data were computed using the moving average method. The Figures 7 and 8 show the historical evolution of average scores, the center moving average (CMA) (the baseline) and the forecast for the following five years, for two categories of teaching staff from the faculty 2.

The intermediate results showed that it is possible to emphasize the seasonality irregularity components, to reveal the seasonality component and to predict the future trends for the average score, getting rid of irregularities and seasonality.

It is noted that the trend for the following years is to increase the scores recorded in the self-evaluation sheet. The same analysis can be performed for all categories of teaching staff.

Conclusion

1. Starting from the minimum standards set out in the job description, the percentage of their performance was determined on the basis of the teachers' annual self-evaluation for the last 10 years.
2. For forecasting a statistical methods was used, namely the moving average method. The analysis can be performed for all categories of teaching staff.
3. On the basis of the forecasts provided by the moving average method, measures can be established to improve the didactic and related activities for each category of teaching staff.

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