EVALUATING TEACHING PERFORMANCE. FROM THEORY TO PRACTICE USING STATISTICAL TOOLS

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The teaching performance is influenced firstly by the quality of the educational system. The universities are trying to raise the expectations regarding the methods used for evaluating the teaching quality. In order for the results to be as much as credible the evaluation must defer to the existing theory and to follow the standardized procedures, starting from some basic principles. The most used framework is represented by the 3P model which contains three parts: 1. The input (factors that come under the students and the professor) 2. The learning process (activities focused on learning, teaching methods, practical ability, individual study) 3. The outcome (the output of the learning process).This study presents some results of a questionnaire based on the existing economic theory and applied to a sample of master business students from Romania. The students were asked to give grades from 1 to 5 to several aspects related to the educational process. These aspects took into consideration the following: if the didactic activity was interesting for the students/ the relationship between the objectives of the course and the activity evolved/ the clarity of the presentations/ the degree of students' participation required by the teacher/ the methods and materials used/ the availability of the teacher. The average grade is 4.39, indicating a very high level of satisfaction, taking into account that the grades ranged from 1 to 5. For 50% of the students, the average grade was below 4.53, while for the other half it was above the specified value. But one has to see the value returned for the majority of the students. The mode equals 5, meaning that most of the students involved in the analyzed programme are extremely satisfied with the quality of the educational process. With a significance value Sig. = 0.004 < 0.01, we can state that there is correlation between the level of satisfaction expressed by the average grade and the number of classes missed by a student, at a confidence of 99%. The value of the Pearson coefficient is -0.213, which shows the existence of a weak reverse connection.

Keywords: higher education, teaching quality

JEL classification: I21, I23

I. Introduction

Quality of the higher level educational system is very important in Romania now-a-days. The liberalization of the educational market has increased competition, allowing students to have choice at all tertiary educational levels. This implies that universities have to come up with

interesting study programs, which take into consideration the requests of the labor market. The goal is to make specialists that do not only have a diploma, but can also find a job with that diploma. In this way, the study of the educational process's quality has gained more and more importance. Falling under this evolution, the research in this article assesses the quality of a master program in one of the Romanian universities.

II.Overview

The most important part of the educational quality is learning performance. Learning performance has two major impact factors: the teaching and the learning methods. The most used framework of these correlations is represented by the 3P model (Biggs, 1999) which contains three parts:

1. The input. Refers to the factors that come under the students (their knowledge's in their field of interest, its interest for the domain and their aptitudes for learning) and factors that come under the professor (the teaching purpose, the professor's performance, the class environment).

2. *The learning process* (allows for activities focused on learning, the teaching methods, the practical ability of the teaching knowledge, individual study on the gain knowledge).

3. *The outcome* represents the output of the learning process, likeness the knowledge gathered by the students (both quantitative as qualitative).

Based on a pilot study and a quantitative study over a sample of 1278 students from the business field, Nguyen and Nguyen (2010, p.307-308) are testing five hypotheses concerning the mechanisms that determine the learning achievement:

1. Learning motivation will have a positive impact on learning performance.
2. Instructor capability will have a positive impact on learning motivation.
3. Instructor capability will have a positive impact on learning performance.
4. The impact of instructor capability on learning motivation will be stronger for students who have higher levels of personal development competitiveness than that of students who have lower levels of personal development competitiveness.
5. The impact of instructor capability on learning performance will be stronger for students who have higher levels personal development competitiveness than that of students who have lower levels of personal development competitiveness.

The statistical outcomes validate the formulated assumptions and reveal a moderated impact of the professor's abilities over the learning motivation and the learning achievement. Similarly to the empirical studies over the same subject (Mare et al., 2011; Tharenou, 2001), Nguyen and Nguyen (2010) prove that the learning motivation has a positive effect over the learning achievement. The professors' ability and the learning motivation influence in proportion of 75% the achievement of learning (the used value is the variance analysis).

The caretakers of the university development according to the „Bologna Process" have agreed that the responsibility of assuring the quality in the higher education system revives first to each university and to its own system of assuring the quality (Berlin Communique, 2003) in accordance to the principle of the university autonomy. The quality assurance in higher education institutions (HEIs) must be in accordance with the legal national frame and includes the evaluation of the universities and of the study programmes through internal standards (including the students participation), external evaluation (ministerial commissions) and the transparent publishing of the results (Kettunen, 2010). For a correct and objective estimation there is the possibility of the use of cross-evaluation of degree programmes. A cross evaluation is defined by a set of 1) Specific aspects; 2) Followed goals; and 3) Strategic objectives. The cross-evaluation is an example of enhancement-led evaluation, which is programmed to assist the institution both

in improving its educational and other actions. The strength of the evaluation is in its capability to relate learning methods, educational processes, and innovative association among the degree programmes.

One of the main important points now at European level is the lifelong learning process. Increasing it has become a major objective in all the treaties and strategies of the European Union. Another important aspect very much discussed is the correlation between university programmes and the skills the labour market demands. Only with the condition of complying with this "demand" the lifelong learning process will improve. Based on the above mentioned issues, the goal of this research was to see the degree of satisfaction for students involved in the master programmes related to audit at the "Babes-Bolyai" University, Faculty of Economics and Business Administration, Cluj-Napoca, Romania.

III. Methodology

To evaluate the master program, a survey was conducted that dealt with all the important aspects of the educational process – didactic activity, means and materials used during classes, teacher's attitude, etc. For better understanding of the results, some features of the students were asked. In the end, the students were required to state the most important positive and negative aspects of the program and to make some suggestions to help improving the quality. In the first part of the questionnaire, students were asked to give grades from 1(meaning the worst impression) to 5 (the best impression) to different aspects of the education process. A new variable was computed that expresses for each individual the average grade at a macro level. Afterwards, different methods of inferential statistics and data analysis were used to get the results. For the study of the relationship between two quantitative variables, the correlation approach was used. The correlation coefficient shows whether a connection exists and of what type.

IV. Results

The students were asked to give grades from 1 to 5 to several aspects related to the educational process. These aspects took into consideration the following:
- if the didactic activity was interesting for the students,
- the relationship between the objectives of course and the activity evolved,
- the clarity of the presentations,
- the degree of students' participation required by the teacher,
- the methods and materials used,
- the availability of the teacher, and so on.

In the end, for an introductory analysis, the grades given by each respondent were put together. Moreover, for each individual an average grade was computed. This value is considered to render an overall opinion upon the quality of the master program.

As can be seen in Table 1, 190 students were involved in the study. Actually, the questionnaire was applied to 200 master students, but 10 of them were eliminated due to missing answers.

The average of the variable is 4.39, indicating a very high level of satisfaction, taking into account that the grades ranged from 1 to 5. For 50% of the students, the average grade was below 4.53, while for the other half it was above the specified value. But one has to see the value returned for the majority of the students. The mode equals 5, meaning that most of the students involved in the analyzed program are extremely satisfied with the quality of the educational process.

Table 1.Descriptive statistics of the average grade given by each student.

N	Valid	190
	Missing	0
Mean		4.3944
Median		4.5333
Mode		5.0000
Std. Deviation		0.5242
Minimum		2.6000
Maximum		5.0000
Percentiles	25	4.0500
	50	4.5333
	75	4.8000

Source: authors' calculus.

The average minimum value returned by the analysis is 2.6, while the maximum is, of course, 5. For a better picture of the distribution, the quartile values were computed. They show that for 75% of the respondents, the minimum average grade given to the aspects analyzed was 4.05. So, on average, almost all of the respondents are very or extremely satisfied with the master program. The distribution in relation to the percentile values is also shown in the box plot presented in figure 1.
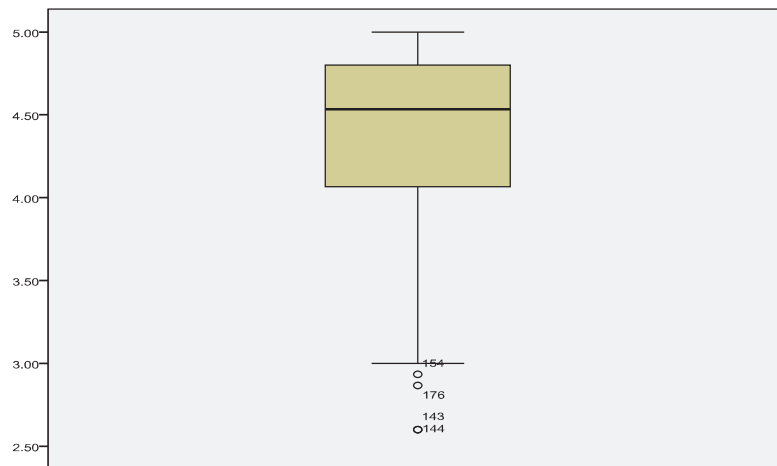

Figure 1.Boxplot of the average grade given by each master student.

Source: authors' calculus.

The boxplot is a very useful figure in such analysis as it emphasizes the grouping of the cases based on the median, the 1st and the 3rd quartile value. In addition, it also displays cases considered outliers. Out of the 190 respondents analyzed, 4 are considered to be outliers in the sense that they do not correspond to what is normal in the population. The four students have an average grade lower than 3 (which would be in between as attitude). Thus, only 4 students out of

190, representing 2%, are quite unsatisfied with the program they are involved in. The rest, 98% are very satisfied.

But for such variables, it is very important the representativeness of the average value and the degree of homogeneity of the distribution. The two aspects are assessed with the help of a single coefficient – the Pearson's coefficient of variation, which is computed as the ration of the standard deviation to the mean. The value of 11.92% returned by the analysis, which is lower than 30%, clearly shows that mean of the average grade of each individual id representative for the students and that they are homogeneously distributed in respect to it.

But not all the students did come to all the courses. To see if there are any specificities, the relationship between the average grade and the number of classes skipped by a student was analyzed. The scatter plot of the distribution is presented below (figure 2). The correlation was tested with the Pearson coefficient.
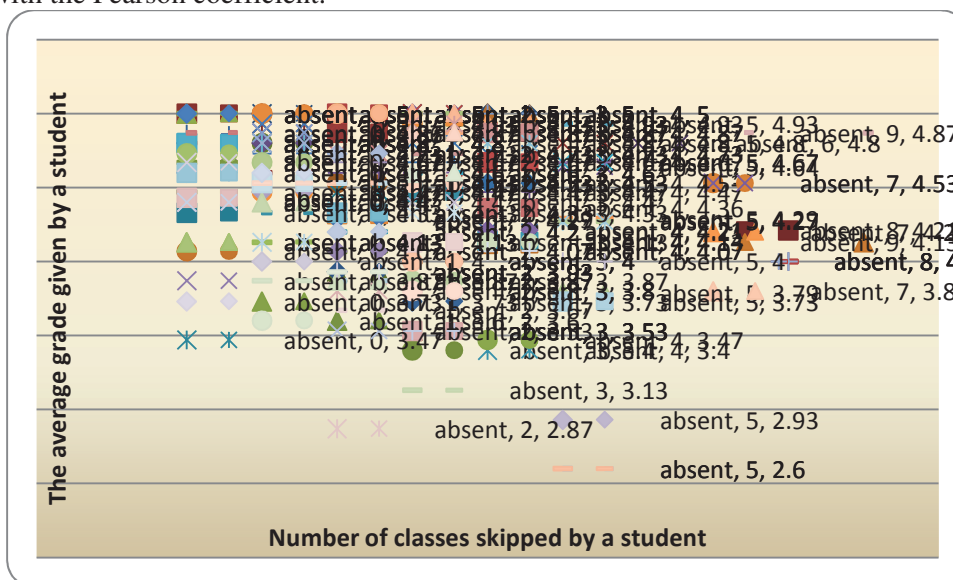

Figure 2. Scatter plot of the average grade and the number of classes skipped by each student.

Source authors' calculus.

Table 2.The correlation with the level of satisfaction

	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval Pearson's R	-0.213	0.060	-2.943	0.004[c]
N of Valid Cases	184			

Source: authors' calculus.

With a significance value Sig. = 0.004 < 0.01, we can state that there is correlation between the level of satisfaction expressed by the average grade and the number of classes missed by a student, at a confidence of 99%. The value of the Pearson coefficient is -0.213, which shows the

existence of a weak reverse connection. In other words, it is expected that students that missed more classes to have a worse opinion about the quality of the program.

V.Conclusions

The goal of this analysis was to emphasize patterns and expectations related to university programmes from the point of view of the lifelong learning concept. As emphasized in the results part, the Romanian university system is struggling to bring forth programmes that are requested on the market. Increasing the practical level and showing students the relevance of each course leads to a much higher degree of satisfaction among them. And, if students are satisfied, they will recommend the programme to other prospective students.

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