

Monograph "Quality Evaluation in Higher Education"

ARTICLE

A Comparison of Indicators of the Quality of Universities

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Abstract

The importance of assessing teaching quality in higher education institutions and establishing quality standards is increasing. The objective of the study is to analyze the quality indicators used at the international level. The evaluated countries were: Spain, The United Kingdom, Germany, France, Australia, The United States, Sweden, Brazil, Italy, Norway and South Africa, the countries with the highest number of universities included in the Academic Ranking of World Universities. The results indicate variability of the indicators used, with the most frequent being those related to material resources, research and human resources. The data are a source of information on the international panorama of quality evaluation. The study emphasizes the importance of creating a common policy to guarantee the quality of universities.

Keywords

evaluation of universities, higher education, quality of universities, indicators of quality

Comparación de los indicadores de la calidad de las universidades

Resumen

Crece la importancia de la evaluación de la calidad de la enseñanza en las instituciones de educación superior y el establecimiento de estándares de calidad. Por esta razón, el objetivo del estudio es analizar los indicadores de calidad utilizados en el ámbito internacional. Se han evaluado los siguientes países: España, Reino Unido, Alemania, Francia, Australia, Estados Unidos, Suecia, Brasil, Italia, Noruega y Sudáfrica, que son los países con mayor número de universidades incluidas en el Ranking Académico Mundial de las Universidades). Los resultados indican una variabilidad de los indicadores utilizados,

de los cuales se utilizan con más frecuencia los relativos a «recursos materiales», «investigación» y «recursos humanos». Los datos suponen una fuente de información sobre el panorama internacional de la evaluación de la calidad. El estudio destaca la importancia de la creación de una política común para garantizar la calidad de las universidades.

Palabras clave

evaluación de las universidades, educación superior, calidad de las universidades, indicadores de la calidad.

Guaranteeing quality of education and institutions requires the establishment of a culture of permanent self-assessment and the accomplishment of clear standards of quality. Universities and their members need to respond to the education needs of the society and the demanding education market (Buela-Casal and Castro, 2008b; Consejo de Coordinación Universitaria, 2005).

Although preoccupation with the procedures to guarantee the quality of education seems to be a new phenomenon, deeper analysis reveals that scientists have been interested in the subject for a long time. According to Van Vught (1993) interest in the evaluation of quality existed in the Middle Ages in Europe and can be classified in two different models. The French school with the University of Paris represents the model in which evaluation was external. The other is represented by the English school with the Universities of Cambridge and Oxford, which were totally independent and competed but both used peer review for the evaluation of quality (Lewis, 2003). In comparison with traditional models, today's tendency is to choose the model which requires external control (Bermúdez, Castro and Buela-Casal, 2007).

Traditionally, quality evaluation was applied mostly to industrial production and, in the case of universities, was focused on scientific production (Agudelo *et al.*, 2003; Buela-Casal, Perakakis, Taylor and Checa, 2006; Buela-Casal, Zych, Sierra and Bermúdez, 2007; Moyano, Delgado and Buela-Casal, 2006; Musi-Lechuga, Olivás-Ávila and Buela-Casal, 2009). Today's point of view is different and focuses on "total quality". Broadly speaking, the evaluation covers the following: programmes, lecturers, students, publications, organization, planning, use of data, client orientation, continuous improvement, teacher training etc. (Buela-Casal, 2005a; Buela-Casal, 2007a; Buela-Casal, 2007b; Buela-Casal and Castro, 2008a, 2008b; Buela-Casal, Gutiérrez, Bermúdez and Vadillo, 2007; Del Río Bermúdez, 2008; Fainholc, 2006; González Mariño, 2008; Muñoz and Fonseca-Pedrero, 2008; Soto Carballo, 2007; Varis, 2007).

Some events over the past few years which have led to the present initiatives can be listed: the Summit of Heads of

State and Government of the European Union countries, Latin-America and the Caribbean (ALCUE) in 1999 in Rio de Janeiro; the Bologna Declaration of 1999 which emphasized the importance of promoting European cooperation which would enable, among other things, the development of criteria and methodology for quality evaluation, to be similar for all the countries. This will lead to a European system in which an academic qualification obtained in one country will be equally valid throughout the European Union, although this unification is a long process, as can be seen for example in psychology (Buela-Casal, Gutiérrez-Martínez and Peiró, 2005). The Bergen Declaration (2005) highlights the importance of enhancing the quality of education by international collaboration and the adoption of common criteria by the quality agencies.

Quality evaluation has been conducted in most European countries and is becoming more common in Latin-American countries. In 2003, the Spanish transnational cooperation agency ANECA, Agencia Nacional de Evaluación de la Calidad y Acreditación (National Agency for Quality Assessment and Accreditation) was set up. According to Lewis (2003), measures already exist to propagate the initiatives in different countries, although there is no international system to guarantee quality and its accreditation. One association created to control education quality in Europe is the European Consortium for Accreditation (ECA), whose purpose is to achieve a common system of accreditation for all of its members (European Consortium for Accreditation, 2006). However, the increase in evaluation and accreditation is possible due to the creation of international networks such as the European Network for Quality Assurance (ENQA). The International Network for Quality Assurance Agencies in Higher Education (IN-QAAHE) was also founded for the collection and propagation of theoretical and practical information between member countries (International Network for Quality Assurance Agencies in Higher Education, 2006).

It should also be emphasized that, although there are many agencies and organizations in Europe which try to establish a unique way to evaluate quality there are still

differences between European countries (Bermúdez *et al.*, 2007). Analysing the current situation of universities in Spain (twelfth in the world ranking for number of universities), it becomes clear that unique criteria of quality are difficult to establish even among universities in a single country (Bermúdez *et al.*, 2007). Moreover, the criteria used in the ranking are different to those used in Spain, although a certain relationship between them can be observed. Comparison and analysis of the discrepancies show that there are still many problems involved in establishing criteria of scientific productivity for evaluating universities (Buela-Casal, 2005b; Buela-Casal, Bermúdez, Sierra, Quevedo-Blasco and Castro, 2009).

The interest in the evaluation of education and standards of the ideal quality and competence are evident. For this reason, the objective of the present study is to analyze a broad panorama of quality evaluation and accreditation of the most prestigious universities in the world and to compare the indicators used. Comparison of the countries enables the analysis of the peculiarities of the indicators of quality and provides information on the mechanisms which are being developed to determine quality in different countries.

Method

The units of analysis

The following units of analysis were used in the study:

- The countries with the highest number of universities included in the Academic Ranking of World Universities (Institute of Higher Education, Shanghai Jiao Tong University, 2008).
- The agencies which evaluate the quality of the universities from Spain, The United Kingdom, Germany, France, Australia, The United States, Sweden, Brazil, Italy, Norway and South Africa
- The indicators of the quality of universities used by the quality agencies of the abovementioned countries.

Materials

The present investigation is based on the data provided by the websites of the European Association for Quality Assurance in Higher Education (ENQA), the International Network for Quality Assurance Agencies in Higher Edu-

cation (INQAAHE), the agencies of quality evaluation of universities from the evaluated countries and the education ministries of each country.

Design and Procedure

The present work is a descriptive study analysing the documents in accordance with the classification proposed by Montero and León (2007). It was written in accordance with norms established by Ramos-Álvarez, Valdés-Conory and Catena, (2008) and with the principles of Berlin for Rankings of Higher Education institutions (International Ranking Experts Group, 2006). The first step involved the selection of the countries with the highest number of universities in the Academic Ranking of World Universities (Institute of Higher Education, Shanghai Jiao Tong University, 2008), which classifies the best 500 universities in the world. The selected countries were: The United States of America, Germany, The United Kingdom, Japan, Canada, Italy, France, China, Australia, The Netherlands, Sweden, Denmark, Finland, Brazil, Norway and South Africa. Internet searches revealed the agencies and the indicators of quality evaluation of the universities, including the websites of ENQA (2006) and the International Network for Quality Assurance Agencies in Higher Education (INQAAHE, 2006). The websites of the ministries of education were also visited to obtain more information on the indicators, where necessary. In those cases where information could still not be found, the directors of the responsible agencies were emailed to resolve the problem and provide information. If there was no response, the embassies of the countries from which the information was needed were emailed. At the end of the process, indicators for quality analysis were obtained from Spain, The United Kingdom, Germany, France, Australia, The United States, Sweden, Brazil, Italy, Norway and South Africa.

Results

A total of 88 indicators were used. The indicators and the information about the countries in which they are used are shown in table 1. In Spain, 15 indicators are being used, 24 in The United Kingdom, 22 in Germany, 59 in France, 13 in Australia, 11 in The United States of America, 4 in Sweden, 10 in Brazil, 15 in Italy, 7 in Norway and 12 in South Africa. The total frequency of application of the indicators is 192 as the same indicators are used in more than one country.

TABLE 1. The indicators of quality used by the analyzed countries

Indicators	Spain	UK	Germany	France	Australia	USA	Sweden	Brazil	Italy	Norway	S. Africa	Number of times used
Education and the learning process	I	I	I	I	I		I	I	I	I	I	10
Libraries and documental funds	I	I	I	I				I	I	I		7
Attention to students and integrated education	I	I	I	I		I	I				I	7
Academic staff	I	I	I			I		I	I	I		7
Structure and the study plan	I	I	I	I		I					I	6
Management		I		I	I			I		I	I	6
Journal publications		I	I	I	I			I				5
Impact on society	I		I	I		I					I	5
Availability of technological resources		I	I	I		I			I			5
Internal/external evaluation		I	I		I	I					I	5
Infrastructures					I			I	I	I	I	5
Student results	I		I	I					I			4
Publication of books		I		I	I			I				4
Presentations at congresses			I	I	I			I				4
Administrative and services staff	I				I	I			I			4
International relations				I	I		I			I		4
Objectives of the programme	I	I	I									3
Student services		I		I	I							3
Laboratories, workshops	I		I					I				3
Results of the programme	I			I		I						3
Scholarships		I		I		I						3
Academic programme			I			I					I	3
Academic staff training				I				I			I	3
Research policy				I						I	I	3
Relationship with other institutions				I			I				I	3
Education management and planning	I			I								2
Lecture rooms	I		I									2
Work spaces	I	I										2
Number of lecturers		I	I									2
Subsidized research		I	I									2
Adapted for disabled students		I		I								2
Agreements with other institutions			I	I								2
Patents and licenses				I	I							2
Ratio students/educators				I					I			2
Average duration of study to obtain the qualification				I					I			2
Research financing				I					I			2
Staff ratio: teaching & research/ administration & services				I					I			2
Research resources				I					I			2
Average cost per student				I					I			2
Services for the community					I						I	2
The teaching organization	I											I
Requirements to obtain the qualification		I										I
Number of post-doctoral researchers		I										I
Special needs programme		I										I
Matriculation costs		I										I
Accommodation support		I										I

Indicators	Spain	UK	Germany	France	Australia	USA	Sweden	Brazil	Italy	Norway	S. Africa	Number of times used
Number of research groups		1										1
Number of doctorates per year		1										1
Application of the ECTS system			1									1
Funds for new technology			1									1
Funds for salaries			1									1
Tutelage			1									1
Academic staff selection				1								1
Foreign students per academic year				1								1
Socioeconomic situation of students				1								1
Complementary courses/credits				1								1
Ratio of professors/total lecturers				1								1
Ratio teaching staff/total staff				1								1
Degree studies/university studies				1								1
Success/drop out in second year				1								1
The role of student associations				1								1
Research on teaching methods				1								1
Relationship lecturers/researchers				1								1
Academic staff/lab workers, %				1								1
Ratio of graduate and doctoral thesis students/total number of enrolled students				1								1
Number of doctorate students				1								1
Number of theses				1								1
Number of researchers				1								1
Creation of companies to apply the research				1								1
Ratio of students/administrative and service staff				1								1
Resources per member of academic staff				1								1
Own resources/funding				1								1
Continued education resources/own resources				1								1
Local financing/total of own resources				1								1
Quality of contacts/research funding				1								1
Mean expenditure/member of academic staff				1								1
Sport				1								1
Language laboratory				1								1
Life quality on campus				1								1
Health education				1								1
Cultural policy				1								1
Public relations				1								1
University publications				1								1
Staff support					1							1
Publicity and divulgation						1						1
Self-financing									1			1
Ability to attract the best students									1			1
Number of indicators	15	24	22	59	13	11	4	10	15	7	12	192

Note: Difference in the number of indicators used is due to lack of information and the number of agencies in each country.

TABLE 2. Frequency of application of the indicators based on the considered categories

Category of indicators	Spain	UK	Germany	France	Australia	USA	Sweden	Brazil	Italy	Norway	S. Africa	Number of times used
The education programme	2	3	4	5	1	2	0	0	1	0	2	20
Organization of teaching	2	3	2	3	2	1	0	1	0	1	2	17
Human resources	2	2	3	9	2	2	0	2	4	1	1	28
Material resources	4	6	6	13	1	2	0	3	5	2	1	43
The education process	2	4	2	6	1	1	2	1	2	1	2	24
Results	3	0	2	9	2	3	2	0	1	1	3	26
Research	0	6	3	14	4	0	0	3	2	1	1	34
Number of indicators	15	24	22	59	13	11	4	10	15	7	12	192

Note: Difference in the number of indicators used is due to lack of information and the number of agencies in each country

The indicators were also classified into the following categories according to the ANECA model of criteria (2005): the education programme, organization of education, human resources, material resources, the educative process and the results. Due to the variability of the indicators used, a seventh category, investigation, was introduced, as it was not included in the previous classification (see table 2).

As can be seen in table 2, the most frequently used indicators are the ones included in the material resources category followed by investigation and human resources.

Another ranking of the most used quality indicators, based on the percentage application of each indicator compared with the rest of the indicators, was also elaborated (Table 3). The indicator for teaching and the education processes occupies the first position in the ranking, indicating that the agencies give special importance to this indicator. Next are libraries and documental funds, followed by attention to students and integrated education, and then academic staff. Only six positions of the ranking are included as they represent the most relevant and frequently used indicators, 58.33% of all obtained indicators.

As can be seen in table 4, France, The United Kingdom and Germany use the highest percentage of indicators. These data should be interpreted with caution because the differences are a result of, among other reasons, the different number of evaluated agencies and the availability of information from each country.

TABLE 3. Ranking of the most frequently used quality indicators

Position	Indicators	*Percentage of the application
1	Teaching and the education process	5,20
2	Libraries and documental funds Attention to students and integrated education Academic staff	3,64
3	The structure and the study plan Management	3,13
4	Journal publications Impact on society Availability of technological resources Internal/external evaluation Infrastructures	2,60
5	Graduate results Publication of books Presentation at congresses Personnel administration/services International relations	2,08
6	Programme objective Services for students Laboratories, workshops Programme results Scholarships Academic programme Academic staff training Research policy Relationship with other institutions	1,56

*Refers to the percentage application of each indicator compared with the rest of the considered indicators

TABLE 4. Classification of the countries based on the percentage utilization of the total number of obtained indicators

Country	*Percentage of the use of the indicators
France	67,04
UK	27,27
Germany	25,00
Spain	17,04
Italy	17,04
Australia	14,77
South Africa	13,63
USA	12,50
Brazil	11,36
Norway	7,95
Sweden	4,54
Total indicators: 88	

*Difference in the number of indicators used is due to lack of information and the number of agencies in each country

Discussion and conclusions

A review of the procedures of quality evaluation, in countries which have initiated the implementation of standards and indicators to assure quality, reveals that these processes are mostly carried out by quality agencies. It is difficult to achieve homogeneity between the countries due to the plural nature of the evaluation systems and the responsible institutions. According to Nelson (2005), the criteria to assure quality should be made public. In addition, the institutions and the programmes should implement a self-evaluation process, as well as accepting an external peer team to validate and compare the results, publish a decision about the accreditation and propose improvements. It is possible to establish minimum common objectives of the evaluation, methodological procedures and the ethical rules respecting variability (ANECA, 2003). It is not always possible to establish objective criteria and the evaluation also requires ipsative assessment (Pelechano, 2005), the assessment of present against prior performance. Therefore, it would seem to be more useful to establish a common base rather than strict rules applicable in every circumstance.

The results of the study indicate France, The United Kingdom and Germany as the countries which use the highest number of indicators from the total number of those considered (88). France is in first position with 59

indicators, followed by The United Kingdom and Germany, with 24 and 22 respectively. These results give information about the variability of the quality evaluation criteria for universities in the analyzed countries. Taking into account the classification categories, material resources, investigation and human resources are the three most frequently used categories. These data help to determine the principal objectives of the evaluation of quality. Nevertheless, there are many factors which increase the variability of the data. For example, some countries have more quality agencies than others, which may increase the number and variability of the indicators.

The results demonstrate the importance of the mechanisms to evaluate quality, and the characteristics of the agencies which evaluate quality, serving as a guide to improve universities following the best standards. The results also show the quality criteria used by the best universities in the world, of great use in guiding strategic plans of other universities, helping them to better compete and occupy higher positions in national and international rankings. Moreover, the results show how to increase the number of quality programmes in higher education in response to the competitive demands which will help to create the European Space for Higher Education (Bermúdez *et al.*, 2007). The comparison of the advantages and disadvantages of each quality evaluation system is also useful for improving the functioning of quality evaluation systems in general.

Guaranteeing quality, as a result of searching for external recognition by the government or quality accreditation agencies, is gaining importance among universities, and has been included in strategic plans to maintain levels of quality. This will help to create an educated society (Consejo de Coordinación Universitaria, 2005). It is important to mention that the different procedures used to guarantee quality vary, depending on the approach. In some of them universities are considered as a whole while others focus more on academic programmes. Although it is difficult to reach definitive agreement on the quality of the indicators used by the analyzed countries, it is possible to establish the general criteria used by the best universities in the world, as shown here (Buela-Casal *et al.*, 2009).

It is important to establish global indicators to permit a unique approach when evaluating the quality of universities in different countries. It is crucial for their comparison and to create a common space. As stated by Crespo (2005), the development of modern countries depends on scientific and technological knowledge. This influences the higher education system and requires collaboration between countries.

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