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ARTICLE

Internationalization of Higher Education: Theoretical and Empirical Investigation of Its Influence on University Institution Rankings

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Abstract

Internationalization constitutes a broadly widespread concept in the literature about management. However, it has recently started being applied to higher education institutions. In this paper, we investigate internationalization in university institutions from both theoretical and empirical perspectives. To achieve our aim, we place particular emphasis on the methodology applied to evaluate the internationalization of higher education institutions from both quantitative and qualitative approaches. We focus on the study of the three most widely accepted higher education institution rankings: Times Higher Education Supplement, Academic Ranking of World Universities and Webometrics Ranking. We find that, while the variable internationalization is included in such rankings through several items, its weight in the overall score is still limited. Additionally, our results demonstrate that the final position achieved by university institutions is hardly determined by their degree of internationalization, but rather relies on other institutional aspects, such as teaching quality and research quality, among others. Furthermore, we argue that internationalization indicators used in current university institution rankings, e.g., international faculty ratio and international students ratio, are far from reflecting the main variables involved in their internationalization processes.

Keywords

internationalization, university institutions, higher education institution rankings, indicators

La internacionalización en la enseñanza superior: investigación teórica y empírica sobre su influencia en las clasificaciones de las instituciones universitarias

Resumen

El concepto de internacionalización está ampliamente difundido en la bibliografía sobre gestión. Pero recientemente también se ha empezado a utilizar en el ámbito de las instituciones de enseñanza superior. En este artículo investigaremos la internacionalización en las instituciones universitarias desde dos perspectivas, teórica y práctica. Para lograr nuestro objetivo, hemos dado especial importancia a la metodología utilizada para evaluar la internacionalización en las instituciones de enseñanza superior desde un punto de vista tanto cualitativo como cuantitativo. Nos hemos centrado en el estudio de las tres clasificaciones de instituciones de enseñanza superior más ampliamente aceptadas: Times Higher Education Supplement, Academic Ranking of World Universities y Webometrics Ranking. Hemos visto que, aunque la variable de la internacionalización se tiene en cuenta en dichas clasificaciones a través de varios factores, su peso en la puntuación global es aun limitado. Además, los resultados que hemos obtenido demuestran que el grado de internacionalización de las instituciones universitarias apenas determina su posición final en las clasificaciones, ya que esta depende de otros aspectos institucionales como la calidad de la enseñanza y la calidad de la investigación, entre otros factores. Asimismo hemos visto que los indicadores de internacionalización utilizados en las clasificaciones más corrientes de instituciones universitarias, como la proporción de personal docente internacional y la proporción de estudiantes internacionales, distan mucho de reflejar las principales variables que intervienen en los procesos de internacionalización.

Palabras clave

internacionalización, instituciones universitarias, clasificaciones de instituciones de enseñanza superior, indicadores

Abbreviations:

HEI: Higher Education Institution; THES: Times Higher Education Supplement; ARWU: Academic Ranking of World Universities; WM: Webometrics Ranking; HERS: Higher Education Ranking System; FTE: Full Time Equivalent; IREG: International Ranking Expert Group; BP: Berlin Principles; CCHS: Social and Human Sciences Centre (Spanish acronym); CSIC: Spanish National Research Council (Spanish acronym).

Introduction

In global and knowledge-based societies, greater emphasis has been placed on the internationalization of higher education. From a purely management perspective, internationalization has been defined as the development of business operations processes, including strategy, structure and resources, within international environments (Calof & Beamish, 1995). Furthermore, applied to higher education institutions (HEIs), a huge array of definitions have been presented, each one focusing on one or several aspects. In this paper, we adopt the definition proposed by Knight (2003: 2), according to which internationalization can be described as “the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education”.

Since internationalization constitutes a source of competitive advantage for HEIs (Van Damme, 2001), we investigate the definitions proposed and the measures applied in relation to the concept of internationalization in HEIs. Moreover, we provide an empirical examination of the most relevant international university rankings: Times Higher Education Supplement (THES), Academic Ranking of World Universities (ARWU) and Webometrics Ranking (WM). We observe that the importance given to the variable internationalization in such rankings is limited and that the indicators used do not accurately reflect the main variables involved in the internationalization processes of HEIs. This paper is organized into four additional sections following this introduction. The second section provides a brief theoretical background about the concept of internationalization in HEIs. The third section constitutes a comparison among three of the most widely accepted international rankings of university institutions (THES, ARWU and WM), with a special focus on how internationalization is reflected in each of them. The fourth section contains a detailed empirical analysis of these university institution rankings. Finally, section five summarizes the main conclusions, limitations and implications, and points out several lines for future research.

Internationalization in University Institutions: Theoretical Background

Higher education and globalisation

Higher education systems, policies and institutions are being transformed by globalisation, which is “the widening, deepening and speeding up of worldwide interconnectedness” (Held et al., 1999: 2). Globalization drives and is driven by higher education. Higher education trains highly skilled workers and contributes to the research base and capacity for innovation that determine competitiveness in the knowledge-based global economy (OECD, 2009). Though HEIs often see themselves as objects of globalisation, they are also its agents (Scott, 1998). Research universities are intensively linked within and between the global cities that constitute the major nodes of a networked world (Castells, 2001; McCarney, 2005). Characteristically, global cities have a high density of participation in higher education; there is a strong positive correlation between the higher education enrolment ratio of a nation or a region and its global competitive performance (Bloom, 2005: 23-24).

The evolution of globalization and of the knowledge society has led to institutional changes in higher education systems, such as changes in managerial attitudes and cultures (Deem & Brehony, 2005), in strategies and in the role of the state. Firstly, most universities have become more entrepreneurial, and this attitude has pushed them to extend the scope of their activities beyond national borders. Thus, activities of HEIs become more developed in international (in terms of cooperation) and global (in terms of competition) frameworks (Horta, 2009). Cooperation and competition are intensifying simultaneously under the growing influence of market forces and the emergence of new players (OECD, 2009). Secondly, according to Knight (1997) and De Wit (1995), internationalization requires two complementary strategies to enhance and sustain the international dimensions of university functions, namely, programme strategies and organisational strategies. The former include various academic initiatives in education, research and university services, and the latter involve organisational initiatives to facilitate and institutionalise international dimensions at universities through management and operating systems. Thirdly, the role of the state also plays a crucial role, since in a global world of higher education, most national governments want to have international universities that compete and cooperate with other universities worldwide. Thus, the role of the state – through funding and policy initiatives favouring the internationalization of higher education – seems to be critical. Indeed, a good example of the globalisation process lies in the spread of new public management in higher education. In nations throughout the world, the responses of systems and institutions to globalisation have been conditioned by ongoing reforms to national systems, and related reforms in the organisation and management of the institutions themselves (OECD, 2009). There is more use of new public management tools, including market forces, financial incentives (competitive funding), increased autonomy and accountability, and deregulation. As a result, HEIs are active on foreign education markets and have taken advantage of the deregulation of tuition fees (Van der Wende, 2007). Nonetheless, as Castells (2000) points out, globalisation leads at the same time to development and underdevelopment, and the need to address such imbalances requires HEIs to broaden their missions for internationalization beyond the quest for profitability alone.

The internationalization of higher education is often seen as a possible response to globalisation (i.e., a way to make HEIs more effective in response to the globalisation of societies, cultures, economies and labour markets) (Karlvermark & Van der Wende, 1997) as, by definition, internationalization is a process that governments can steer more readily than globalisation (Van der Wende, 2007). In this sense, higher education has become increasingly international in the past decade as more and more students choose to study abroad, enrol in foreign educational programmes and institutions in their home country, or simply use the Internet to take courses at colleges or universities in other countries. In the next section, we explore the definitions of internationalization in higher education proposed in the literature.

Definitions of internationalization

While internationalization is not a new concept, it has started being applied to the area of higher education in recent years (De Wit, 1995). Indeed, a fundamental problem for researchers and practitioners relies on dealing with the variety of terms relating to internationalization in higher education, such as “international education, international studies, internationalism, transnational education, and globalization of higher education. There are more concrete subdivisions of the field: academic mobility, international cooperation, study abroad, and international exchange. More curriculum-focused terms include area studies in education, multicultural education, intercultural education, cross-cultural education, education for international understanding, peace education, global education, transnational studies, and global studies” (De Wit, 2002: 103).

Table 1 shows a classification of the definitions of internationalization proposed in the literature, according to four generic perspectives established by Knight (1997): activity, competency, ethos and process.

Following the *activity* perspective, internationalization in higher education is the process of integrating international education into the curriculum (Harari, 1992; Klasek, 1992; Mestenhauser & Ellingboe, 1998). Such an approach, centred on activities, involves “increasing international cooperation, enhancing national security and improving economic competitiveness” (Powell, 2004).

From the *competency* approach, Soderqvist (2002: 29) claims that internationalization is “a change process from a national higher education institution to an international higher education institution leading to the inclusion of an international dimension in all aspects of its holistic management in order to enhance the quality of teaching and learning and to achieve the desired competences”. Internationalization improves an institution’s capabilities in relation to both teaching and research (Elkin, Farnsworth & Templer, 2008), and enables a university to benchmark its courses against international norms (Ayoubi & Masoud, 2007). Universities usually internationalize in order to attract foreign students (Lipsett, 2009; McGowan & Potter, 2008), better qualified domestic students and top quality research staff (Van der Wende, 2007).

The *ethos* perspective defends that internationalization is a process of strengthening the international character of campuses with the support of a leading institution (Hanson & Meyerson, 1995; Harari, 1992; Pickert & Turlington, 1992).

Table 1. Perspectives of internationalization in the context of higher education institutions

1. Activity perspective	
It focuses on higher education activities that promote an intercultural dimension, including the presence of international students, curriculum and student/faculty exchange.	Harari (1992) Klasek (1992) Arum and Van de Water (1992) Mestenhauser (1998) Green and Olson (2003) Javalgi et al. (2003) Powell (2004) Green and Shoenberg (2006)
2. Competency perspective	
It emphasizes the development of skills, knowledge, attitudes and values that are important for one to compete in the global marketplace.	Soderqvist (2002) Van der Wende (2007) Ayoubi and Masoud (2007) McGowan & Potter (2008) Elkin et al. (2008) Lipsett (2009)
3. Ethos perspective	
It emphasizes creating a culture or climate that values and supports intercultural/international perspectives and initiatives.	Pickert and Turlington (1992) Hanson and Meyerson (1995)
4. Process perspective	
It stresses the integration of an international and intercultural dimension into teaching, research, and service through a combination of activities, policies and procedures.	Knight (1994) Schoorman (1999) De Wit (2002) Olson et al. (2001)

Source: Self-elaboration.

Finally, the *process* approach claims that internationalization is a sustainable process of “integrating an international and intercultural dimension into the teaching, research and service functions of the institution” (Knight, 1994: 7).

In short, since previous studies do not rely on a commonly accepted definition of internationalization of higher education, they place emphasis on different indicators to measure the degree of internationalization at HEIs. Each of those indicators highlights a different strategic aspect. As a result, reaching consensus on which should be the most relevant indicators still remains an unsolved issue. For instance, one of the most widely used indicators for internationalization is the ratio of international students versus domestic students. Taking this as the basis, a recent study has pointed out that ‘world class universities’ (i.e., Harvard, MIT, Yale or Cambridge) have very high scores for this indicator. However, when the student population of such universities is disaggregated by level of education, only 16% of the undergraduate student population consists of international students while, at graduate level, this percentage increases to 41% (Horta, 2009). In the next section, we analyze the different indicators for internationalization at HEIs used by three widely accepted higher education ranking systems.

Higher education ranking systems

Higher education ranking systems (HERSs) have recently had a major impact on all stakeholders involved in the knowledge services industry (Marginson, 2007). These rankings are perceived as having “cemented the notion of a world university market” (Marginson & Van der Wende, 2007: 306), in which HEIs are measured according to a global scale, therefore introducing the notion of competition among HEIs as a new paradigm in most countries (Altbach, 2006).

Ranking models vary considerably in their purposes and scopes, in their definitions and in their methodological designs (Usher & Savino, 2006). Ranking lists focus not only on universities as a whole, but also on various fields of activities such as teaching, research or executive education, curriculum content, etc. Yet, all ratings and rankings of institutions assume that there is a ‘brand effect’ for the university as a whole.

Moreover, despite the great debate about their validity and reliability, rankings have become relevant tools for institution policy makers. Indeed, the measurement of internationalization is conceived, within the strategic plans of HEIs, as the achievement of a specific position in one or more of the global rankings. Therefore, HERSs play a key role in the current education market, characterized by the Bologna Process, the harmonisation of educational standards, and high student and faculty mobility, among other aspects (OECD, 2009).

Overview of THES, ARWU and WM Rankings

In this section, three international rankings are investigated: the Times Higher Education Supplement (THES), the Academic Ranking of World Universities (ARWU) compiled by Shanghai Jiaotong University, and the Webometrics Ranking (WM) that arises from an initiative of the Cybermetrics Lab.

The world university ranking, published in THES, represents a combination of numerical and top-level approaches (i.e., focused on the 200 top-ranked universities). The core analysis is quite subjective, including peer reviews and employers’ opinion. The non-subjective side emerges from other indicators, such as citation of academic papers created by staff, students-faculty ratio and internationalization aspects, among others. Table 2 provides a summary of the methodology applied to elaborate the THES ranking.

Research quality is represented with two items: Global Academic Peer Review and Citation per Faculty. *Global Academic Peer Review* is the key element of the THES ranking and is based on an online survey distributed to academics all over the world. Results are compiled based on three years’ responses, reaching a total of 9,386 responses in 2009. Respondents are not allowed to evaluate their own institution nor to respond more than once (only their latest response is counted). Different weights are applied both geographically and by discipline in order to ensure as fair a representation as possible. A *Citation* is a reference to one academic publication in the text of another. The more citations a publication receives the better it is perceived to be. Hence, the more highly cited papers a university publishes, the stronger this university can be considered to be in terms of research. The

source used in this evaluation is Scopus, the world's largest abstract and citation database of research literature (*World University Rankings: methodology, 2009*). Whilst the *Students-Faculty Ratio* may not be a perfect measure of teaching quality, it is the most globally available and accessible measure of commitment to teaching. This indicator is made up from two datasets: Full Time Equivalent (FTE) students and Full Time Equivalent (FTE) faculty. *Employ Review* is based on a global online survey distributed to employers. Results are also based on three years of 'latest response' data. Similarly, geographical weightings are applied to ensure a fair representation for all the regions of the world. *Internationalization* is an undeniable component of today's world class universities. It reflects the proportion of international students and faculty who are attracted to that institution. The international migration of students and faculty is a major trend in higher education due to globalization. Each of those groups represents 5% in the total score of this ranking. Consequently, the total weight given to internationalization in the THES ranking methodology is 10%.

Table 2. Overview of the THES ranking's methodology

Criteria	Indicator	Explanation	Weight
Research quality	Global Academic Peer Review	Composite score drawn from peer review survey	40 %
	Citation per Faculty	Score based on research performance factored against the size of the research body	20 %
Teaching Quality	Students/Faculty Ratio	Score based on students/faculty ratio	20 %
Graduate Employability	Global Employ Review	Score based on responses to employer survey	10 %
Internationalization	International Faculty	Score based on proportion of international faculty	5 %
	International Students	Score based on proportion of international students	5 %

Source: Self-elaboration from <http://www.topuniversities.com>.

ARWU is compiled by Shanghai Jiaotong University and, like the THES ranking, is based on numerical and top-level approaches (i.e., focused on the 500 top-ranked universities). It relies on a quantitative basis, with four performance indicators: *education quality*; *faculty quality*; *research output*; and *size of the institution*. Table 3 shows the components included in the methodology of this ranking.

Table 3. Overview of the ARWU ranking's methodology

Criteria	Indicator	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals (<i>Alumni</i>)	10 %
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals (<i>Award</i>)	20 %
	Highly cited researchers in 21 broad subject categories (<i>HiCi</i>)	20 %
Research Output	Papers published in Nature and Science (<i>N&S</i>)	20 %
	Papers indexed in Science Citation Index Expanded and Social Science Citation Index (<i>PUB</i>)	20 %
Per Capita Performance	Per capita academic performance of an institution (<i>PCP</i>)	10 %

Source: Self-elaboration from <http://www.arwu.org/ARWUMethodology2009.jsp>.

Education quality is calculated according to alumni winning Nobel Prizes and Fields Medals. *Alumni* are defined as those who obtain bachelor's, master's or doctoral degrees from an institution. Faculty quality is estimated over a number of Nobel Prizes awarded to alumni and staff, as well as the number of most highly cited researchers in 21 broad subject categories. *Award* in this context refers to the total number of staff (working at an institution at the time of winning a prize) of an institution winning Nobel Prizes in Physics, Chemistry, Medicine and Economics, as well as Fields Medals in Mathematics. The assessment of an output is carried out over article citation. *HiCi* represents the individuals who are the most highly cited within each category. *N&S* considers the number of papers published in Nature and Science. *PUB* takes into account the total number of papers indexed in the Science Citation Index Expanded and Social Science Citation Index. Finally, the size of an institution refers to the weighted scores of the other indicators divided by the number of FTE staff. *PCP* estimates the weighted scores of the above five indicators divided by the number of FTE academic staff.

In contrast to THES, ARWU does not emphasize any indicator which could directly fit for the measurement of internationalization of an HEI. Consequently, university ratings may differ in their evaluation of various parameters – ARWU tends to rely on research indicators, while THES accounts for international staff and students. Nevertheless, they have a common point in research citation: the international publication data basis (i.e., ISI and Scopus). Furthermore, ARWU could be viewed as a ranking that considers internationalization in an indirect way, since an institution's performance and size depend on some internationalization components (e.g., international staff and students).

As an alternative to the institutional approach used for THES and ARWU rankings, some members of the International Ranking Expert Group (IREG), founded by the UNESCO European Centre for Higher Education, established in 2006 a "set of principles of quality and good practice" (IREG, 2006: 1) in order to create a framework "that ultimately will lead to a system of continuous improvement and refinement of the methodologies used to conduct" (IREG 2006; 1) HERSs. These principles are known as Berlin Principles.

According to BP, rankings should "be clear about their purpose and their target groups. Rankings have to be designed with due regard to their purpose. Indicators designed to meet a particular objective or to inform one target group may not be adequate for different purposes or target groups". Thus, in order to be able to carry out comparative analyses, our study is focused on rankings based on these principles.

Along these lines, the WM formally and explicitly adheres to BP of HEIs (*Ranking Web of World Universities*, 2009). This ranking is an initiative of the Cybermetrics Lab. This Lab is a research group belonging to the Human and Social Sciences Centre (CCHS), which is part of the Spanish National Research Council (CSIC), the largest public research institution in Spain. WM constitutes a different type of ranking, which has been considered as relevant for the assessment of internationalization processes of HEIs. While other rankings focus only on a few relevant aspects (e.g., research results, web indicators, etc), WM covers all types of scholarly communication – formal and informal – with a greater possibility of reaching much larger potential audiences to offer access to scientific knowledge to researchers and institutions located in other countries, and also to involve interested economic, industrial, political or cultural stakeholders. WM correlates positively with quality of education and academic prestige, but other non-academic variables are also taken into account. University

activity is multidimensional; hence, web presence identifies the level of an activity. In such a way, web indicators have been proposed as the basis for measuring and establishing a university's rank. The choice of indicators was made according to several criteria, some of them aimed at enhancing quality and academic and institutional strengths, while others focus on web publication and the promotion of Open Access initiatives. WM covers more than 5,000 HEIs. Table 4 shows information about the WM methodology.

Table 4. Overview of the Webometrics (WM) ranking's methodology

Indicator	Weight
Visibility (V): The total number of unique external links (inlinks) received by an institution's website(s) from Google, Yahoo, Live Search and Exalead.	50 %
Size (S): Number of pages returned within four search engines relating to the institution: Google, Yahoo, Live Search and Exalead.	20 %
Rich Files (R): Considering the relevance of the formats used for academic and publication activities, the following have been selected: Adobe Acrobat (.pdf), Adobe PostScript (.ps), Microsoft Word (.doc) and Microsoft PowerPoint (.ppt). These data were extracted using Google, Yahoo Search, Live Search and Exalead.	15 %
Scholar (Sc): Google Scholar provides the number of papers and citations for each academic domain. These results from the Scholar database represent papers, reports and other academic items.	15 %

Source: Self-elaboration from http://www.webometrics.info/about_rank_es.html.

The number of external inlinks (*Visibility*) received by a domain reflects an impact of the published material. Though incentives for linking can differ, in this case it complies with the same concept as a bibliographical citation. *Size* comprises the total number of web pages. This indicator is based on the recognition of a new global market for academic information, so the Web is the adequate platform for the internationalization of institutions. A strong and detailed web presence providing exact descriptions of the structure and activities of a university can attract new students and scholars worldwide. This indicator has a significant weight (20%) and measures another side of internationalization – digital space, which has an essential impact on various activities of institutions. Finally, the success of self-archiving and other repository-related initiatives can be roughly represented from *Rich file* and *Scholar* data.

Additionally, given the wide variety of indicators included in HERs, stakeholders selectively use such indicators according to different rationales. Three groups of stakeholders have been especially highlighted in the literature: students, employers, and principals and directors.

First, students are influenced by indicators when they apply to universities. Prior to such application, students will have contacted the institution directly or personally visited it. Then, students will look at the information gathered in the prospectus. However, data showing any negative aspect would probably not be mentioned in the prospectus, and so the applicant is faced with a collection of non-comparable and selective pieces of information (Tofallis, 2011).

Second, employers in charge of selecting from a huge amount of applicants with similar degrees may also be influenced by university rankings (or by certain indicators applied to those rankings) when making their recruitment decisions.

Finally, principals and other directors find it difficult to resist quoting university rankings, given the influence of such rankings on employers and prospective students. Principals and directors usually focus efforts on those criteria that they can most easily improve in order to push their institutions up in the rankings. As a result, even their strategic decisions are likely to be influenced by the expected impact on certain rankings (Tofallis, 2011). Moreover, another possible effect of reaching a good position in certain rankings affects tuition fees that universities feel they can charge. In this sense, prestigious institutions in the world rankings can point to this in order to justify charging higher fees.

The internationalization variable in THES, ARWU and WM: a comparative analysis

Nowadays universities are becoming more global, involving many internal and external stakeholders. Therefore, the application of university rankings has become a crucial tool for identifying the level of a university institution within the knowledge service industry. HEIs internationalize in order to become more competitive in the education market, to attract foreign students, to recruit international scholars, to support cross-campus research collaborations and to increase their performance.

However, earlier we pointed out that, while some common variables are present in all rankings, there are important differences in some of the indicators included in each of those rankings. Table 5 summarizes the main differences and common points among the three international HEI rankings analyzed.

Table 5. Comparison of international university rankings: THES, ARWU and WM

Indicators	THES	ARWU	WM
Alumni with Nobel Prizes / Fields Medals		+	
Staff with Nobel Prizes / Fields Medals		+	
Research output (publications) / Rich Files & Google Scholar		+	+
Research citation/Visibility	+	+	+
Academic performance in relation to institution size / size: number of web pages relating to the institution		+	+
Peer Review	+		
Employer Opinion	+		
Staff/Student Ratios	+		
Proportion of International Staff	+		
Proportion of International Students	+		

Source: Self-elaboration.

It is evident that internationalization is taken into account both directly and indirectly. Particularly, four main indicators for the internationalization process can be noted. First, academic performance in

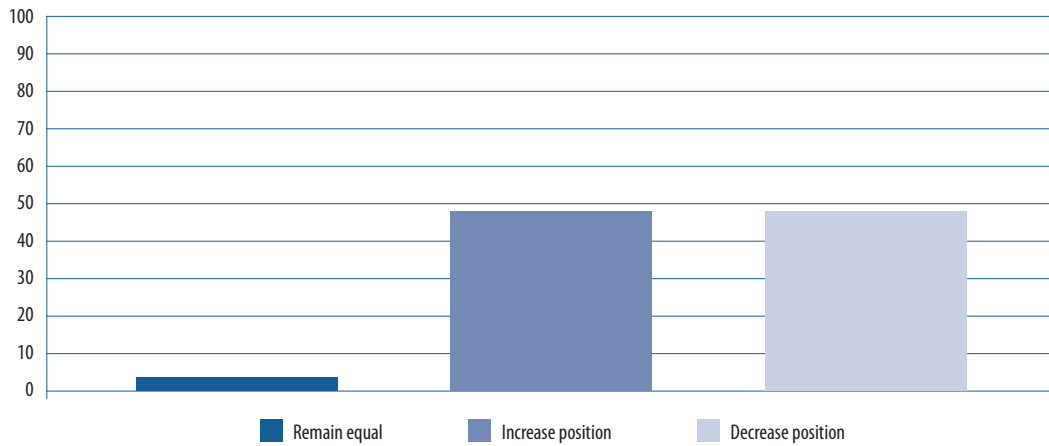
relation to institution size (ARWU). It constitutes 10% of the overall weight of indicators. It represents an indirect assessment of internationalization due to the fact that size measurement involves both levels of national and international staff and students without distinguishing them. Second, the variable size. It indicates the number of web pages returned by search engines relating to an HEI (WM), and it is assigned 20% of the total score. It focuses on a specific aspect of internationalization, e.g. internet space, hence measuring quantity of web pages relating to a certain HEI worldwide in search engines such as Google, Yahoo, Live Search and Exalead. Third, the proportion of international staff (THES) totals 5% of the indicator's overall weight and it represents the level of international personnel involved in an HEI's activities. And fourth, the proportion of international students (THES). It also totals 5% of the indicator's overall weight. This indicator provides an impression of how attractive an institution is around the world and it suggests to what extent an institution has embraced the globalization agenda.

Nevertheless, these rankings present some limitations. In relation to methodological biases, existing global rankings do not pay attention to language diversity, which represents a huge part of the internationalization concept. ARWU and THES use Thomson Reuters and Scopus databases, which basically include predominantly U.S. and English-language journals. Consequently, publications in languages other than English are not counted. Moreover, Hendel and Stolz (2008) found the overwhelming majority of European HERs are published in a language other than English. Thus, Stolz et al. (2010: 508) point out that "the seemingly existing consensus about the most studied ranking systems might be linguistically biased".

Empirical Analysis

In this section we carry out an initial empirical approximation to the role played by internationalization in HEI rankings. To achieve our aim, we take the data published in 2009 in ARWU and THES rankings corresponding to the top-ranked universities worldwide. Figure 1 represents the changes experienced by the 100 top-ranked HEIs in their ranking position depending on the inclusion of internationalization indicators in 2009. We observe that 96% of universities experienced a change, either up or down, in their ranking position in 2009, after internationalization indicators were included in the scoring methodology. Furthermore, the ranking position of just four out of 100 institutions did not change after incorporating internationalization indicators. The inclusion of such internationalization indicators therefore has an important influence on the position in which universities are ranked.

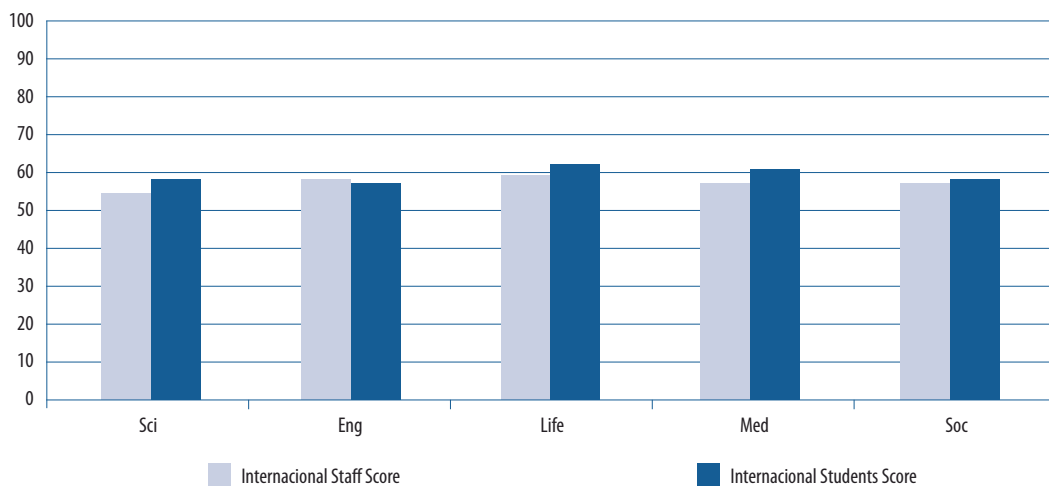
Figure 1. Changes in the position of the 100 top-ranked universities with the inclusion of internationalization indicators (2009)



Source: Self-elaboration from THES (2009).

Moreover, Figure 2 provides a graphical representation of the internationalization indicators (i.e., international staff score and international students score) for the 100 top-ranked universities in 2009 by field of expertise. It is important to highlight the high degree of uniformity in the internationalization profiles of HEIs across disciplines. Furthermore, average internationalization scores for both internationalization indicators in all disciplines are above 50 points (out of a maximum of 100), which represents a medium internationalization effort.

Figure 2. Comparison of internationalization indicators for the 100 top-ranked universities across higher education disciplines (2009)



Source: Self-elaboration from ARWU (2009).

Table 6 shows the results of comparing the Pearson correlation between the total score obtained by the 200 top-ranked universities in 2009 and their internationalization score. We can conclude that the total internationalization score a university obtains from the two internationalization indicators (i.e., international staff score and international students score) is positively and significantly correlated

with the overall score of that university. Hence, there is a positive relationship between the degree of internationalization of a university and the score that university gets in HEI rankings.

Table 6. Correlation between total score and internationalization score for the 200 top-ranked universities (2009)

		Total score	Internationalization score
Total score	Pearson correlation	1	0.324**
	Sig. (two-tailed)		0.000
	N	200	200
Internationalization score	Pearson correlation	0.324**	1
	Sig. (two-tailed)	0.000	
	N	200	200

** Correlation is significant at 0.01 (two-tailed).

Source: Self-elaboration.

Nevertheless, it may be also interesting to analyze the correlation between the internationalization score and ranking position. Table 7 shows the Pearson correlation between the internationalization score of the 200 top-ranked universities and their position in the THES ranking in 2009. We can see that there is a negative and statistically significant relationship between the degree of internationalization of a university institution and the position in which that university is ranked.

Table 7. Correlation between internationalization score and universities ranking position for the 200 top-ranked universities (2009)

		Internationalization score	Ranking position
Internationalization score	Pearson correlation	1	-0.303**
	Sig. (two-tailed)		0.000
	N	200	200
Ranking position	Pearson correlation	-0.303**	1
	Sig. (two-tailed)	0.000	
	N	200	200

** Correlation is significant at 0.01 (two-tailed).

Source: Self-elaboration.

Although this result would appear to be counterintuitive at first sight, we find the following explanation. If we look at the most highly ranked universities (i.e., Harvard, Cambridge, Yale, etc.), they are both highly internationalized (indeed, they are well-known for being the main receptors of brain-drain) and highly ranked. Hence, for such a limited sample of universities, this duality is possible because they also present very high scores in other variables that receive higher weights in the rankings, such as research quality and teaching quality. However, if we were to stop the analysis

here, we might draw the biased conclusion that the more internationalized a university is (in terms of international faculty and students), the higher position it has in the rankings.

Nonetheless, if we look at the vast majority of remaining universities, which are not at the top of the rankings, we observe that they do not score so highly for variables such as teaching quality and research quality, yet some of them present very high scores in international faculty and international students. This serves to prove that being highly internationalized, while having a positive impact on a university score, is not the main driver of a university's position in the rankings. However, how do we interpret the negative significant relationship? We conclude that using international faculty and international students as the only indicators for internationalization may have a perverse impact on most universities. This is due to the fact that universities may focus on internationalization in terms of quantity instead of quality and, hence, on attracting more and more international faculty and students to obtain higher scores in the rankings. This focus on quantity instead of quality may produce negative interaction effects on the other variables contained in the rankings (e.g., teaching quality and research quality), which would be translated into a very high internationalization score while simultaneously lowering the score achieved in other indicators representing the remaining 90% of the overall score. As a consequence, universities may get a worse position in the rankings. According to De Wit (2002: 114), "as the international dimension of higher education gains more attention and recognition, people tend to use it in the way that best suits for their purpose. While one can understand this happening, it is not helpful for internationalization to become a catchall phrase for everything and anything international".

Additionally, we also argue that the real indicators of internationalization are not included in the measurement of these rankings. Furthermore, we defend that the current internationalization indicators may lead to biased interpretations of the correct way for universities to achieve a higher ranking position, as well as to biased conclusions. As a consequence, we consider that these two indicators of internationalization may have a negative effect on universities.

By combining the results of Table 7 with those shown in Table 6, we are able to assert that, while the internationalization of universities counts towards the scores obtained in international rankings, the main weight of such scores is explained by variables which are not related to internationalization processes, such as the scores for peer review, employee review and students/staff.

Conclusions

In the face of globalization and the knowledge society, international competition in the area of higher education has become more intense and the interest in measuring this phenomenon has increased simultaneously. This paper seeks to investigate the internationalization variable in university institution rankings from both theoretical and empirical perspectives. When looking at HEI rankings, it is possible to see that certain universities occupy higher positions in the rankings and that these positions are held for years. Why are they so popular abroad and what makes them so valuable? Is internationalization a key feature of the higher ranked HEIs? This study provides an investigation into the existing measures of internationalization in the context of university institutions.

To achieve this goal, this paper presents a revision of the concept of internationalization in the context of higher education. We conclude that there is a lack of a common definition for the internationalization of university institutions. In this sense, it is important to note that university stakeholders selectively choose which indicators are the most relevant according to different rationales, which hinder the possibility of reaching consensus on a set of uniform indicators for all the groups involved at HEIs. Furthermore, we place particular emphasis on the methodology applied to evaluate the internationalization of HEIs from both quantitative and qualitative approaches. From the quantitative perspective, rankings have the potential to be a valuable instrument for academic quality assurance because, on the one hand, they can provide useful information to consumers and policy makers about quality differences and, on the other, they can play a role in fostering improvements in university standards. Our analyses demonstrate that world university rankings pay limited attention to elements of internationalization. Indeed, some of these rankings, e.g., ARWU, do not directly reflect the international elements, but rather include them within more generic categories such as academic performance in relation to institution size. THES and WM contain international components as an indicator, such as the proportion of international staff/students and size (number of web pages relating to the institution). Nonetheless, while internationalization priorities at each HEI have yet to be clearly defined and while each indicator highlights a different strategic aspect, it is hardly possible to decide which indicators are the most relevant for the measurement of internationalization in higher education.

This paper represents an initial approximation to the topic of internationalization in the context of higher education, and we are aware that it presents some limitations. The main limitation emerges from the data sources employed, which contain restricted indicators and have a lack of attention to the international component. A focus on institution rankings allows comparisons of institutions to be made in relation to a single aspect of institutional activity, such as education, research, internationalization or knowledge transfer. It is important to note that there are multidimensional university rankings that allow evaluations to be performed on various categories of university prestige, including a broad list of international elements. In the methodologies of such rankings, each user is empowered to give a weight to each indicator, thus leading to a list of institutions complying with own interests. Consequently, there is no possibility for a general ranking and no opportunity to compare institution rankings because they differ in nature. The main problem (and at the same time, advantage) of this type of rankings arises from the variability of results depending on each user's personal preferences.

Moreover, several lines for future research can be proposed. First, researchers may be drawn towards studying the relationships between internationalization and various indicators such as visibility, which refers to the total number of unique external links received by an institution website from different search engines. And second, it would be interesting to develop a new set of indicators (e.g., indices) reflecting, in a more accurate way, the relevance that internationalization should have in a context where university institutions are more and more open.

Finally, we consider several potential reflections, which may be translated into potential future extensions of the study. If the internationalization component had a stronger weight in higher education rankings, would this lead to a change in university positions within such rankings? A longitudinal analysis could be undertaken in order to observe the changes in the methodology:

When was the internationalization component first introduced? To what extent has its inclusion brought about a change in a university's rank? Along these lines, it may be of interest to conduct a study that adds complementary data about the internationalization of universities and analyzes their correlation with other internationalization indicators already included in these rankings.

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