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Rankings and Accountability in Higher Education

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Chapter 12

A decade of international university rankings: a critical perspective from Latin America

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A decade ago, education researchers at Shanghai Jiao Tong University set out to determine how far Chinese institutions lagged behind the world's top research universities in terms of scientific production (Liu and Cheng, 2005). The result was the Academic Ranking of World Universities (ARWU, 2003),[1] the first hierarchical classification of universities on a global scale. Despite the relatively narrow focus of the ranking methodology, the results were widely viewed as a reflection of the quality of an individual institution, or at least, the closest possible approximation. Other international university rankings quickly followed, creating a ripple effect with far-reaching consequences for higher education institutions worldwide.

While similar classification systems and league tables have existed on a national or regional scale for several decades in the English-speaking world (Turner, 2005; Webster, 1986), the impact of international rankings has been particularly significant, both on individual institutions and on national higher education systems as a whole. By comparing institutions as far afield as Shanghai, Cape Town and New York, the rankings project the universities beyond their local and regional contexts, exposing them to unprecedented scrutiny. In the context of globalization and dwindling government funding for higher education, universities already face increasing pressure to compete for resources and students. In their efforts to stand out, university administrators frequently seize on international rankings as 'evidence' of the superior quality of their institution. Meanwhile, government officials, higher education experts and the media employ these classification systems to defend or criticize higher-education policies (Ordorika and Rodríguez, 2008; 2010). In some cases, international rankings have been used to determine the amount of state subsidies public institutions receive, as well as to influence students' decisions about which university to attend and how much tuition they are willing to pay. They also impact decision-making and strategic planning on the part of administrators, as they seek to emulate the highest-ranked universities. In Denmark, rankings even play a role in immigration policy, with

1 The Academic Ranking of World Universities (ARWU) has been produced annually since 2003 by the Institute of Higher Education at Jiao Tong University in Shanghai. It compares 1,200 universities worldwide and classifies 500 on the basis of their scientific production, taking into account the following criteria: the number of Nobel Prize and Field Medal winners among the university´s alumni and staff; the number of highly cited researchers in twenty-one subject categories; articles published in the journals *Science* and *Nature*, and the number of publications listed in Thomson Reuters (ISI) Web of Knowledge (ISI Wok), one of two competing bibliometric databases of peer-reviewed scientific journals; and per capita scientific production, based on the previous indicators.

graduates of highly ranked universities receiving extra points in applying for work or residency permits.[2]

In short, the impact of international rankings can hardly be overstated. This is because, beyond their scope, purpose or limitations, they are viewed by many as objective measures of institutions' quality, and the similarities in the order of the different rankings only serves to legitimize the results. But is this uncritical view really justified? The answer is a categorical no. In reality, as we argue in this chapter, the rankings are heavily biased towards a sole model of higher education: the elite, US research university, of which Harvard is the premier example. Furthermore, the myriad problems and limitations of the rankings, such as lack of transparency in their methodology, bias towards the English language, and their homogenizing influence, often far outweigh their potential benefits (Berry, 1999; Bowden, 2000; Federkeil, 2008a; Florian, 2007; Ishikawa, 2009; Jaienski, 2009; Ordorika et al., 2009; Provan and Abercromby, 2000; Van Raan, 2005; Ying and Jingao, 2009).

Such is the case in Latin America which, despite a 500-year tradition of higher education, has fewer than a dozen universities represented among the top 500 in the main rankings. The shortage of funding for higher education and research, in particular, is partly to blame for the region's limited presence. But there is another explanation: the rankings do not take into account the full range of roles and functions of Latin American universities, which extend far beyond teaching and research. Public universities, in particular, have played a vital role in building the state institutions of their respective countries and in solving their nations' most pressing problems, to say nothing of the wide array of community service and cultural programmes that they offer (Ordorika and Pusser, 2007; Ordorika and Rodríguez, 2010). The largest public universities act as what Ordorika and Pusser have termed 'state-building universities' (2007), a concept that has no equivalent in the English-speaking world (Ordorika and Pusser, 2007). However, the rankings do not take into account the huge social and cultural impact of these institutions of higher education in Latin America and elsewhere. Instead, such universities often feel pressure to change in order to improve their standing in the rankings, in

2 Denmark classifies candidates for work and residency permits according to a point system, which takes into account the candidate's level of education, among other factors. In evaluating post-secondary degrees, it relies on the results of the QS World University Rankings, produced by the British-based educational services company, Quacquarelli Symonds. Graduates of universities ranked among the top 100 universities receive 15 points (out of a total of 100); graduates of institutions in the top 200 receive 10 points; and those in the top 400, 5 points, according the following government immigration website: www.nyidanmark.dk/en-us/coming_to_dk/work/greencard-scheme/greencard-scheme.htm

the process sacrificing their individual and national character as institutions (IESALC, 2011; Ordorika and Rodríguez, 2008; 2010).

Such a homogenizing influence is only one of several negative effects of the rankings, which we examine in further detail in this chapter. We begin by discussing the context in which rankings emerged almost a decade ago, before consolidating their influence, primarily within government and university policy offices and the media. We also discuss the principal rankings, on the national, regional and international level, and the diversity among them. We then go on to analyse the limitations of the ranking methodologies, before examining their effects, with particular focus on the Latin American context.

The context behind the rankings

The popularity of rankings is partly a reflection of the increasingly pervasive 'culture of accountability' in policy agendas, as well as societal demands for access to information in both the public and private spheres. In this context, higher education institutions have faced growing pressures to develop instruments to measure, classify and track their performance in academic and administrative areas, resulting in evaluation dynamics with wide-ranging goals (Bolseguí and Fuguet, 2006; Elliott, 2002; Power, 1997). These include transparency and accountability with regard to finances, particularly in the case of publicly funded institutions; the implementation of formulas for improving and guaranteeing quality; public accounting of goals and results; and government control over the performance of individual institutions or a system as a whole, among others (Acosta, 2000; Borgue and Bingham, 2003; Díaz Barriga, Barrón Tirado and Díaz Barriga Arceo, 2008; Ewell, 1999; Mendoza, 2002; Palomba and Banta, 1999; Rowley, Lujan and Dolence, 1997; Villaseñor, 2003). Among the range of mechanisms for achieving accountability, comparative evaluation has gained in prominence, to the degree that it offers reference points for contrasting achievements and improvements by different institutions or within university systems. In that context, rankings and league tables have become increasingly popular and their results are frequently taken into account in designing university policies (Merisotis and Sadlak, 2005; Marginson, 2007). In the logic of the rankings, there is a need to reestablish the principle of academic hierarchy, which has been undermined by the massification and indiscriminate dissemination of knowledge via the internet. Rankings argue that it is in the interest of higher education institutions, national governments, editorial companies, scientific communities

and other relevant actors to agree on classification criteria that are based on common ideals and academic values, in order to compete within the global knowledge economy (Ordorika and Rodríguez, 2008).

The methodology also responds to demands, established from a market perspective, to classify and arrange hierarchically the multiplicity of institutions that coexist within an increasingly diversified and stratified world of education services (Brennan, 2001; Cuenin, 1987; Dill, 2006; Elliott, 2002; Kogan, 1989; Marginson and Ordorika, 2010; Puiggrós and Krotsch, 1994; Strathern, 2000).

The rankings reflect the evolving battle on a global level for control over the flow of knowledge: the system of knowledge prestige, exemplified by the rankings, tends to reproduce the status quo, in which universities that have traditionally dominated in the production of scientific knowledge ratify their position in the global hierarchy, and a minority of emerging institutions attempt, and occasionally succeed, in establishing a competitive presence (IESALC, 2011; Marginson and Ordorika, 2010). 'Rankings reflect prestige and power; and rankings confirm, entrench and reproduce prestige and power' (Marginson, 2009: 13). The pressure to follow the leader results in an expensive 'academic arms race' for prestige, measured mostly in terms of research production in the sciences, medicine and engineering (Dill, 2006).

> The pernicious effect of this competitive pursuit of academic prestige is that it is a highly costly, zero-sum game, in which most institutions as well as society will be the losers, and which diverts resources as well as administrative and faculty attention away from the collective actions within universities necessary to actually improve student learning (Dill, 2006: 6).

In such a context, other university priorities, such as community outreach and extension programmes, or even research in the humanities and social sciences, tend to fall by the wayside.

The diversity of rankings

There are currently a wide variety of ranking-style classification systems at the international, regional and national levels. The international rankings with the greatest impact in Latin America are ARWU, the *Times Higher Education*

World University Rankings (*THE*),[3] the QS World University Rankings,[4] Webometrics[5] and SCImago Institutions Rankings (SIR).[6] The European Union[7] and the University of Leiden,[8] which in recent years has begun producing its own international ranking as well, stand out among the regional systems. There are also national classification systems in several countries. In the United States, the most well-known of these are the one produced by *US News and World Report*[9] and *The Top American Research Universities*.[10] In the United Kingdom, several newspapers (*The Times*,[11] *The Independent*[12] and *The Guardian*[13]) publish occasional guides to the best universities and

3 The *Times Higher Education* ranking was originally published by the higher education supplement of the *Times* newspaper, one of Britain´s leading dailies. From 2004 to 2009, the *THE* rankings were compiled by Quacquarelli Symonds, a private educational services company based in London. The ranking classifies the universities throughout the world on the basis of a combination of indicators related to scientific production, as well as the opinions of academic peers and employers.

4 Starting in 2004, Quacquarelli Symonds began producing international rankings of universities for the *Times Higher Education Supplement* (*THE*). However, in 2009, QS ended its agreement with *THE* and began producing its own rankings, using the methodology it previously employed for *THE*. Since 2009, it has produced annual versions of the Ranking of World Universities, as well as expanding its production to include rankings by region and by academic area. The most recent are the QS Ranking of Latin American Universities and the QS World University Rankings by Subject, both of which were introduced for the first time in 2011. The latter ranking classifies universities on the basis of their performance in five areas: engineering, biomedicine, natural sciences, social sciences, and arts and humanities.

5 The Webometrics Ranking of World Universities has been produced since 2004 by Cybermetrics Lab (CCHS), a research group belonging to the High Council for Scientific Research (Consejo Superior de Investigación Científica) (CSIC) in Spain. Webometrics classifies more than 4,000 universities throughout the world on the basis of the presence of their webpages on the internet.

6 Since 2009, the SCImago Research Group, a Spanish consortium of research centers and universities – including the High Council for Scientific Research (CSIC) and various Spanish universities – has produced several international and regional rankings. They include the SIR World Report, which classifies more than 3,000 universities and research centres from throughout the world based on their scientific production, and the Ibero-American Ranking, which classifies more than 1,400 institutions in the region on the basis of the following indicators: scientific production, based on publications in peer-reviewed scientific journals; international collaborations; normalized impact and publication rate, among others. SCImago obtains its data from SCIverse Scopus, one of the two main bibliometric databases at the international level.

7 The ranking of the scientific production of twenty-two universities in European Union countries was compiled in 2003 and 2004 as part of the *Third European Report on Science & Technology Indicators*, prepared by the Directorate General for Science and Research of the European Commission.

8 The *Leiden Ranking*, produced by Leiden University´s Centre for Science and Technology Studies (CWTS) is based exclusively on bibliometric indicators. It began by listing the top 100 European universities according to the number of articles and other scientific publications included in international bibliometric databases. The ranking later expanded its reach to include universities worldwide.

9 The *US News and World Report College and University* ranking is the leading classification of colleges and universities in the United States and one of the earliest such system in the world, with the first edition published in 1983 (Dill, 2006). It is based on qualitative information and diverse opinions obtained through surveys applied to university professors and administrators. See: www.usnews.com/rankings

10 The *Top American Research Universities*, compiled by the Center for Measuring University Performance, has been published annually since 2000. The university performance report is based on data on publications, citations, awards and institutional finances. See: http://mup.asu.edu/research.html

11 See *Good Universities Guide*, at: www.gooduniguide.com.au/

12 See *The Complete University Guide*, at: www.thecompleteuniversityguide.co.uk/

13 See *The Guardian University Guide*, at: http://education.guardian.co.uk/universityguide2005

programmes based on ranking indicators. In Canada, the most prestigious is the Maclean's universities guide, produced by the magazine of the same name;[14] in Australia, *The Good Universities Guide*,[15] and in Germany, the ranking produced by the Center for the Development of Higher Education (CHE),[16] which includes classifications for Germany, Switzerland and Austria. In Chile, *El Mercurio* newspaper publishes the *General Panorama of the Country´s Best Universities*.[17] In Brazil, the publisher Abril produces the *Student's Guide*[18] series, which includes a university ranking. It also awards the annual Best University Prizes, with sponsorship from Banco Real,[19] a leading bank. It is worth noting that the vast majority of classification lists have been developed either by newspaper or magazine publishers or by independent consulting firms. However, an increasing number of academic bodies, comprised of specialists in evaluation techniques, are starting to generate and disseminate their own such instruments[20] (Ordorika and Rodríguez, 2008; 2010).

One area in which institutional evaluation practices converge with the rankings is in the use of the results from student exams, as well as information related to the fulfillment of other parameters and performance indicators. One such instrument is the National Student Performance Exam (ENADE), administered by the National Institute of Educational Research and Studies (INEP) in Brazil, as well as the State Higher Education Quality Exams (ECAES), administered by the Colombian Institute for the Support of Higher Education (ICFES) (Ordorika and Rodríguez, 2008; 2010).

The explicit objective of these general exams is to provide education authorities (both in government and within the institutions) with elements to facilitate decision-making. The results of the tests applied to institutions and programmes are also made available to the public as part of a culture of accountability. The public dissemination of the evaluations is part of an

14 It is published in the *OnCampus* supplement, accessible at: http://oncampus.macleans.ca/education/category/rankings/

15 Published by Hobsons, a publisher and educational and labour services consulting company. See: www.gooduniguide.com.au/

16 The CHE describes itself as a think-tank dedicated to promoting development and advocating new ideas and concepts to be applied to educational systems and institutions. It provides consulting and training services, as well as publishing a yearly university ranking. See: www.che-ranking.de/cms/

17 See: www.emol.com/especiales/infografias/ranking_universidad/index.htm

18 See: http://guiadoestudante.abril.com.br/

19 See: www.melhoresuniversidades.com.br

20 For example, the group of academics at the Graduate School of Education, at Shanghai Jiao Tong University, charged with producing the Academic Ranking of World Universities (ARWU); the Research Group SCImago, comprised of researchers at universities in Spain; and the Map of Higher Education in Latin America and the Caribbean, which is in the process of being developed by a team of specialists at IESALC-UNESCO.

effort to promote competitiveness among institutions and programmes. Although the results of the ENADE (Brazil) and ECAES (Colombia) exams are not presented in the form of institutional rankings, they tend to be taken as such by the media and public opinion (Ordorika and Rodríguez, 2008).

Other institutional evaluations, in particular in the case of the programme accreditation systems, also offer possibilities for hierarchical classifications. Given the tendency within countries to adopt the international accreditation protocols for higher education, the results of these evaluation processes also tend to form part of the criteria included in the rankings (Buelsa et al., 2009; Rodríguez, 2004).

The information generated by the mechanisms for institutional evaluation (student exams, processes of evaluation and accreditation of institutions and programmes, evaluation of the academic staff) is used by the rankings to strengthen their degree of objectivity. However, as we argue in this chapter, many critics question the use of rankings as instruments for determining, based on a limited range of indicators, the quality of universities. There is also criticism surrounding the undesirable effects of basing public policy decisions and institutional reforms on the results of rankings.

Methodological basis of rankings: problems and perspectives

University rankings distinguish themselves essentially on the basis of their methodologies: those that base their analysis on the quantitative evaluation of knowledge production, employing indicators such as the number of publications and citations, among other comparative data (Dill and Soo, 2005); and those that rely on surveys of institutional image and reputation: evaluations of academic peers or of the consumers of educational services, such as students, parents and employers (Ackerman, Gross and Vigneron, 2009; Beyer and Snipper, 1974; Cave et al., 1997; Federkeil, 2008b). Increasingly, there is a tendency by rankings to make use of both methodologies, with some combination of quantitative and qualitative indicators (Filip, 2004; Usher and Savino, 2006).

As previously mentioned, these classification systems tend to serve as key reference points in the design of public policies and institutional reforms.

At the same time, they have become a recurrent topic in the media, leading to a distorted perception that equates an institution's position in the rankings with a complete picture of the quality of an institution, that includes all aspects of its performance (Espeland and Sauder, 2007; Hazelkorn, 2007; Marginson, 2009; Marginson and Van der Wende, 2006; Roberts and Thomson, 2007; Salmi and Saroyan, 2007; Siganos, 2008; Thakur, 2008).

This situation has sparked intense debates, studies, analyses and criticisms regarding the limits and risks of the hierarchical classification systems. Among controversial aspects of comparing institutions of higher education are: the selection and relative weight of the indicators; the reliability of the information; and the construction of numeric grades on which the hierarchies are based. There has also been criticism surrounding the homogenizing nature of the rankings, the predominance of the English language, and the reductionist manner in which a single evaluation of the quality of an institution, which is in turn based solely on its scientific production, is taken as definitive (Berry, 1999; Bowden, 2000; Federkeil, 2008a; Florian, 2007; Ishikawa, 2009; Jaienski, 2009; Ordorika, Lozano Espinosa and Rodríguez Gómez, 2009; Provan and Abercromby, 2000; Van Raan, 2005; Ying and Jingao, 2009).

The commercial orientation of many of the rankings – and of *THE* and QS in particular – has also sparked concerns, due to the potential for profit motives to sway the results (Ordorika and Rodríguez, 2010). For example, QS and other commercial rankings offer consulting services to universities with the promise of improving their standing in the ranking. This creates a potential conflict of interest, as the ranking organization may feel obligated to elevate its client in the following year´s ranking to justify the cost of its consulting services. Since many of the rankings do not provide access to the information used in ordering the universities, there is potential leeway for tampering with the results to favour one university over another. Other profit-making activities associated with rankings are: the sale of advertisements both in print and on the ranking organization's webpage, particularly around the time the annual results are released; charging a fee for access to the full list of universities and related information; promoting their own data providers; and the creation or sale of specialized information services (Ordorika and Rodríguez, 2010).

In order to be profitable, rankings must generate expectations regarding their results. One way of doing this is to change the order of the universities from year to year, at times, in the case of the lower-ranked institutions, even moving them by 100 or more spots in the hierarchy (Ordorika and Rodríguez, 2010). In the case of the first QS Latin America University

Rankings, the order of universities in the region did not correspond to their respective positions in the same year's QS World Ranking, a phenomenon which resulted in a flurry of media reports highlighting the unexpected winners – and thus, heightened exposure for QS. We examine the Latin American presence in the rankings in more detail in the section on the region's university tradition.

The shift in ranking methodologies from year to year could be expected to produce small variations. But the degree of volatility is such that it calls into question the very justification for the rankings: the need for objective measurement systems that policy-makers can take at face value in orienting their institutional or national strategies. So far, the critiques of the rankings on the part of academics, both at the national and international level, have yet to acquire the critical mass needed to provoke changes in the methodologies applied, nor have they succeeded in limiting the proliferation of rankings. On the contrary, all signs seem to indicate that the rankings are establishing themselves as key actors in institutional reform processes, given their current use on the part of public policy designers, as well as the increasing demand for information regarding the performance of institutions or programmes (Altbach, 2006; Cyrenne and Grant, 2009; Hazelkorn, 2008; Sanoff, 1998).

However, while the criticisms of the rankings have had little practical impact, they have generated a space for constructive discussion of the benefits and limitations of the classification systems. In this regard, there are numerous proposals that seek to define adequate standards and practices, in the interest of improving the transparency, reliability and objectivity of existing university rankings. Such proposals would benefit both the rankings administrators and their users (Carey, 2006; Clarke, 2002; Diamond and Graham, 2000; Goldstein and Myers, 1996; Salmi and Sorayan, 2007; Sanoff, 1998; Vaughn, 2002; Van der Wende, 2009). The most well-known of these initiatives is the one proposed by the International Ranking Experts Group (IREG).[21]

During their second meeting on rankings in Berlin, in May 2006, the group of specialists that form part of IREG released a report entitled *Berlin Principles on Ranking of Higher Education Institutions*. Subsequently,

21 The IREG was established in 2004 as part of the Follow-up Meeting for the Round Table entitled 'Tertiary Education *Institutions: Ranking* and League *Table Methodologies*.' The meeting was jointly sponsored by the UNESCO European Centre for Higher Education (CEPES) and the Institute for Higher Education Policy (IHEP).

the IREG has concentrated its efforts on organizing the International Observatory on Academic Ranking and Excellence,[22] which disseminates information on the main national and international rankings, as well as the activities conducted by the working group. Some of the suggested practices are starting to be adopted by the most influential global rankings and, in general, the principles have focused the current debate on future perspectives for the classification models (Cheng and Liu, 2008; McCormick, 2008).

The Latin American perspective

In May 2011, university presidents and administrators from throughout Latin America and the Caribbean gathered in Buenos Aires for a UNESCO-sponsored conference on higher education and drafted a joint declaration in opposition to the rankings.[23] The document cites the following limitations and negative effects of the rankings: (a) the lack of clarity regarding the selection criteria by which institutions are evaluated; (b) the failure of the rankings to specify the numeric distance between institutions, or to reveal the actual indicators used to compute the results; (c) the use of a limited number of indicators to determine the overall quality of the institutions; (d) the undesirable effects of the rankings' dissemination by the media, and in particular, the pressure exerted on institutions to make changes within the logic of the rankings, rather than based on their own institutional goals; (e) the totalizing nature of the rankings, which equate numeric indicators with the universities' merit as institutions; (f) the risk to university autonomy posed by the pressure on institutions to focus solely on those areas measured by the rankings; (g) the resulting distortion of university budget priorities; and (h) the fact that the rankings are based on a sole ideal of a university, with the implicit assumption that all universities should transform themselves in accordance with that model (IESALC, 2011).

22 See: www.ireg-observatory.org/

23 The conference, the Fourth Meeting of University Networks and Councils of Rectors of Latin America and the Caribbean, was sponsored by UNESCO´s International Institute for Higher Education in Latin America and the Caribbean (IESALC). An English translation of the document, *Position of Latin America and the Caribbean with regard to the Higher Education Rankings*, is available on the IESALC website: www.iesalc.UNESCO.org.ve/dmdocuments/posicion_alc_ante_rankings_en.pdf

The logic and methodology of the rankings also run counter to international declarations on higher education, in particular the two definitions ratified by the UNESCO-sponsored World Conferences on Higher Education. In the first conference, in 1998, delegates defined higher education as a public good, whose mission extends beyond that of providing quality and relevance in teaching, research and cultural diffusion; it includes the broader goal of promoting sustainable development and focusing on 'eliminating poverty, intolerance, violence, illiteracy, hunger, environmental degradation and disease' (UNESCO, 1998), among other roles. Furthermore, the declaration asserts the importance of strengthening research focused on analysing and anticipating social needs (IESALC, 2011).

In the World Conference held again ten years later, in 2008, the Latin American delegation successfully advocated for higher education to be defined as a social public good, access to which should be guaranteed and free of discrimination. At the suggestion of the region, the final communiqué lists social responsibility as the first of five general components of the mission of higher education (IESALC, 2011). The declaration states that 'higher education must not only develop skills for the present and future world, but also contribute to the education of ethical citizens committed to a culture of peace, the defense of human rights, and the values of democracy' (IESALC, 2011).

Such a focus on the humanistic and societal missions of higher education is clearly absent from the ranking criteria. But it is in just those areas that Latin American universities tend to excel. Such is the case of the state-building universities, such as the Universidad Nacional Autónoma de México (UNAM), the Universidade de São Paulo, the Universidad de Buenos Aires, the Universidad Nacional de Córdoba or the Universidad Central de Venezuela, to name a few. All are dominant teaching and research-oriented universities in their own right. But their reach extends far beyond their scientific mission (Ordorika and Pusser, 2007).

UNAM, the region's largest institution of higher education with nearly 200,000 post-secondary students and another 120,000 enrolled in its system of public high schools (UNAM, 2011a), is a prime example of a state-building university.

At various points in its long history, UNAM has played a major role in the creation of such essential state institutions as public health ministries and the Mexican judicial system. The national university has also played a key role in

the design of innumerable government bodies and offices and in educating and credentialing the civil servants who dominate those offices. UNAM has served since its founding as the training ground for Mexico's political and economic elites as well as for a significant portion of the nation's professionals. Perhaps most important, at many key moments in Mexican history, UNAM has served as a focal point for the contest over the creation and recreation of a national culture that placed such post-secondary functions as critical inquiry, knowledge production, social mobility and political consciousness at its centre (Ordorika and Pusser, 2007: 190).

UNAM is among the handful of Latin American universities that figure in the top 200 in the most influential international rankings, just behind the Universidade de São Paulo. That standing is a reflection of both universities' impressive research production. UNAM, for example, accounts for roughly a third of all scientific articles produced by Mexican researchers and indexed by the ISI Web of Knowledge, while São Paulo represents more than a quarter of its country's article production (DGEI, 2012). However, the rankings do not take into account the huge social and cultural impact of nation-building universities in Latin America and elsewhere (Ordorika and Pusser, 2007). In the case of UNAM, the university operates the National Seismological System and the National Astronomical Observatory, sails two research vessels along the Mexican coasts, and operates more than 60,000 extension programmes. It is also home to one of the country's most respected symphonic orchestras, as well as the country's national library and national periodicals repository (UNAM, 2011a; UNAM, 2011b).

The ranking methodologies also tend to give greater weight to production in natural sciences, medicine and engineering, with a lesser focus on the social sciences and the humanities – areas in which Latin America has a long and respected tradition. In addition, in terms of their perception of research production, the rankings have a clear bias towards the English language. The vast majority of scientific journals listed in the main bibliographic databases consulted by the rankings – the ISI Web of Knowlege and SciVerse Scopus – are published in English-language journals, while only a small number are published in Spanish or Portuguese.

The ranking organizations are aware of the problem, however they tend to downplay its significance. In 2007, Quacquarelli Symonds, which at the time was producing the rankings for the *Times Higher Education Supplement*, cited the more extensive coverage of non-English journals within the Scopus database as justification for switching to the latter; at the time, 21 per cent

of the journals in Scopus were in languages other than English or in both languages.[24] However, that still meant that 79 per cent of the publications tallied by QS were published in English. Even at universities of the size and weight of UNAM and the Universidade de São Paulo (USP), articles published in English still represent a minority of the research production of the universities, but they comprise a majority of the articles registered in ISI and Scopus. In 2009, 88 per cent of the 3,571 articles that UNAM registered in ISI were published in English; and in the case of USP, 90 per cent of the 8,699 articles in ISI were in English (DGEI, 2012).

A better measure of the Latin American production could be found in regional databases such as Latindex,[25] SciELO,[26] CLASE[27] and PERIODICA.[28] Of the latter two, 71 per cent of the scientific journals included in their indexes are in Spanish and 18 per cent in Portuguese, compared with just 11 per cent in English (CLASE, 2011; PERIODICA, 2011). While consulting those databases might not alter the order of the institutions, it would reflect a more complete picture of their scientific production in the native language of their researchers.

24 For more details on the reasoning behind QS' decision to switch databases, see *Why Scopus?* at: www.topuniversities.com/world-university-rankings/why-scopus.

25 Based at UNAM, Latindex is a cooperative bibliographic information system, which was co-founded in 1995 by Brazil, Cuba, Venezuela and Mexico. Housed at UNAM, it acts as a kind of regional clearinghouse for scientific publications. It maintains a database of more than 20,000 publications from throughout Latin America, the Caribbean, Spain and Portugal, with articles written in Spanish, Portuguese, French and English.

26 Based in Brazil, SciELO (Scientific Electronic Library Online) is a bibliographic database and open-access online scientific archive, which contains more than 815 scientific journals. It operates as a cooperative venture among developing countries, with support from the Brazilian federal government, the government of São Paulo state, and the Latin American and Caribbean Center on Health Sciences Information.

27 CLASE (Citas Latinoamericanas en Ciencias Sociales y Humanidades) is a bibliographic database that specializes in Social Sciences and the Humanities. Created in 1975 and housed at UNAM´s Department of Latin American Bibliography, it contains nearly 270,000 bibliographic references to articles, essays, book reviews and other documents published in nearly 1,500 peer-reviewed journals in Latin America and the Caribbean, according to the database's website: http://biblat.unam.mx/

28 PERIÓDICA (Índice de Revistas Latinoamericanas en Ciencias) was created in 1978 and specializes in science and technology. It contains approximately 265,000 bibliographic references to articles, technical reports, case studies, statistics and other documents published in some 1,500 peer-reviewed scientific journals in Latin America and the Caribbean.

Latin American universities in the rankings

Given such methodological biases, as well as financial and other constraints, it is not surprising that Latin American universities have not figured prominently in international rankings. In spite of this, universities like UNAM, Buenos Aires and a group of Brazilian universities led by São Paulo have managed to keep within reach of top-level institutions from the wealthiest countries, where expenditures in higher education as well as in research and development are many times higher.

However, as with other regions, the respective positions of the Latin American universities vary significantly over time and among rankings. As part of a broader study of university classification systems, the Directorate General for Institutional Evaluation at UNAM maintains an interactive database[29] that tracks the presence of the Iberoamerican universities (in Latin America, Spain and Portugal) from 2003 to the present in the following rankings: ARWU, QS, *THE*, SCImago, HEEACT,[30] and Webometrics. According to the database, the Universidade de São Paulo has the highest average position of any university in the region in the main rankings: 112. However, its position varies from twentieth place in this year's Webometrics ranking to 264th in the 2006 edition of *Times Higher Education Supplement* (*THE*). UNAM, which at times has ranked higher than São Paulo, particularly in the *Times Higher Education* ranking, has an average position of 135, although it has been ranked anywhere from 38th to 354th place.

Given its relative longevity, the Shanghai ranking provides a good example of the degree to which the universities' standings can change over time, even within the same ranking. In the case of the nine Latin American universities that appear in the ranking's top 500 list, São Paulo was the favorite last year. But it has fluctuated between the 166th and 115th position – a difference of 49 places – while the Universidad de Buenos Aires has ranged from 309th to 159th position, a difference of 150 places. UNAM,

29 The database Universidades Iberoamericanas en los principales rankings internacionales 2003-2011 is accessible at: http://dgei.unam.mx/?q=node/27.

30 In 2007, the Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT) began producing the Performance Ranking of Scientific Papers for World Universities, which classifies universities on the basis of their scientific production, over time and in the current year. In 2008, the ranking also began classifying the top 300 universities in accordance with their publications in six subject areas, based on data from the ISI Web of Knowledge.

which in 2004 led Buenos Aires by 139 places, last year trailed the Argentine university by 11 positions.

Table 1. Iberoamerican universities in ARWU 2003-2011 (ordered according to their position in 2011)

University	2003	2004	2005	2006	2007	2008	2009	2010	2011
Universidade de São Paulo	166	155	139	134	128	121	115	119	129
Universidad de Buenos Aires	309	295	279	159	167	175	177	173	179
Universidad Nacional Autónoma de México	184	156	160	155	165	169	181	170	190
Universidade Estadual de Campinas	378	319	289	311	303	286	289	265	271
Universidade Federal do Rio de Janeiro	341	369	343	347	338	330	322	304	320
Universidade Estadual de São Paulo	441						419	334	351
Universidade Federal de Minas Gerais					453	381	368	347	359
Pontificia Universidad Católica de Chile							423	410	413
Universidad de Chile		382	395	400	401	425	436	449	416

Source: Adapted from DGEI (2011).

There can even be variations within the same year in rankings produced by the same company. Such is the case with the QS World University Rankings and the first QS Latin America University Rankings, in 2011. While UNAM tied with USP as the top-ranked Latin American university in the worldwide ranking, it placed fifth in the Latin American rankings. Meanwhile, the Universidade Estadual de Campinas was far behind UNAM in the global ranking, but two places ahead in the Latin America ranking (Table 2).

QS officials argue that the discrepancy in the results between the two rankings is due to the differing methodologies employed, and that in the case of Latin America, 'the methodology has been adapted to the needs of the region' (QS, 2011/2012). According to its producers, the methodology includes an 'extensive' survey of academics and institution leaders in the region, and takes into account 'student satisfaction, and the quality, number and depth of relationships with universities outside the region' (QS, 2011/2012: 4). It is unclear, however, how such perceptions are measured. More importantly, according to its creators, the regional ranking is more exact than the worldwide version, which calls into question not only the methodology employed in the larger ranking, but also the methodology of the rankings as a whole. The differences among the universities' positions in both rankings serve to underscore this point.

Table 2. Latin American universities in the World and Latin American editions of the QS rankings

Institution	Country	WR2010	WR2011	LAR2011
Universidad Nacional Autónoma de México	Mexico	222	169	5
Universidade de São Paulo	Brazil	253	169	1
Universidade Estadual de Campinas	Brazil	292	235	3
Pontificia Universidad Católica de Chile	Chile	331	250	2
Universidad de Chile	Chile	367	262	4
Universidad de Buenos Aires	Argentina	326	270	8
Instituto Tecnológico de Estudios Superiores de Monterrey	Mexico	387	320	7
Universidad Austral	Argentina	358	353	13
Universidade Federal do Rio de Janeiro	Brazil	381	381	19
Universidad de los Andes	Colombia	501-550	401-450	6
Universidad Nacional de Colombia	Colombia	551-600	451-500	9
Universidade Federal de Minas Gerais	Brazil	501-550	501-550	10

Source: QS World University Rankings (2010, 2011), Latin America University Ranking (2011).

Conclusion

Given the limitations and problems present in the current rankings, there is a growing trend towards alternative comparative systems that provide hard data in lieu of hierarchical lists. One such effort is the *Comparative Study of Mexican Universities*,[31] produced by the Directorate General for Institutional Evaluation at UNAM. The study, known by its Spanish acronym ECUM and accessible through an interactive, online database, provides official indicators in a broad range of academic and research areas. Statistics are available for each of more than 2,600 individual universities and research centres, as well as by type of institution (e.g. technological institutes or multicultural universities) and by sector (public or private). While the study allows users to rank institutions on the basis of individual indicators, it does not enable them to generate an overall hierarchy – a deliberate omission on the part of

31 See: http://www.ecum.unam.mx/node/2

its creators, who intended the study to foment future research and analysis, rather than provoke competition among institutions (Lloyd, 2010).

However, while such alternatives are growing in popularity, they have yet to gain sufficient critical mass to impact the predominant ranking paradigm or to undermine its influence. As a result, there is an urgent need for policy-makers at the university and government levels to change the way they perceive the rankings. In the case of Latin America, they should also demand that producers of rankings and comparisons take into account the most salient features and strengths, as well as the broad range of contributions, of the region's universities to their respective countries and communities, such as those outlined in this chapter.

The rankings should not be confused with information systems, nor should they be taken at face value, given their limited scope and the heavily biased nature of their methodologies. At best, they may serve as guides to which institutions most closely emulate the model of the elite, US research university. At worst, they prompt policy-makers to employ wrongheaded decisions – such as diverting funding from humanities programmes in order to hire Nobel Prize laureates in the sciences, solely in order to boost their standing in the rankings.

Rather than attempt to transform all universities along a sole institutional model, policy-makers should work to provide a diversity of options in higher education, based on the particular needs of individual communities, countries or regions, and to evaluate them on the basis of a wide range of criteria.

The producers of the rankings, meanwhile, should take a much broader view in evaluating the institutions. Or, at least, they should be explicit and open about the limitations of their methodologies, rather than pretending to provide a holistic picture of the universities surveyed. While there is much at stake for the ranking institutions in terms of profits and reputation, there is even more at stake for universities worldwide, whose autonomy is being undermined by the homogenizing influence of these systems of classification, and their market-oriented message.

References

Ackerman, D., Gross, B.L. and Vigneron, F. 2009. Peer observation reports and student evaluations of teaching: who are the experts? *Alberta Journal of Educational Research*, 55(1): 18–39.

Acosta Silva, A. 2000. *Estado, políticas y universidades en un periodo de transición*. México, Universidad de Guadalajara/Fondo de Cultura Económica.

Altbach, P.G. 2006. The dilemmas of ranking, *International Higher Education*, 42: www.bc.edu/bc_org/avp/soe/cihe/newsletter/Number42/p2_Altbach.htm (Accessed 11 April 2012.)

Berhdahl, R.M. 1998. The Future of Flagship Universities, graduation speech at Texas A&M University, (5 October 1998): http://cio.chance.berkeley.edu/chancellor/sp/flagship.htm (Accessed 11 April 2012.)

Berry, C. 1999. University league tables: artifacts and inconsistencies in individual rankings, *Higher Education Review*, 31(2): 3–11.

Beyer, J.M. and Snipper, R. 1974. Objective versus subjective indicators of quality in graduate education, *Sociology of Education*, 47(4): 541–57.

Bolseguí, M. and Fuguet Smith, A. 2006. Cultura de evaluación: una aproximación conceptual, *Investigación y Postgrado*, 21(1): 77–98.

Bowden, R. 2000. Fantasy higher education: university and college league tables, ***Quality in Higher Education,*** 6: 41–60.

Borgue Grady, E. and Bingham Hall, K. 2003. *Quality and Accountability in Higher Education: Improving Policy, Enhancing Performance*. Westport, Conn.: Praeger.

Brennan, J. 2001. Quality management, power and values in European higher education, J.C. Smart (ed.) *Higher Education: Handbook of Theory and Research*, vol. XVI, Dordrecht, Netherlands: Kluwer Academic Publishers, pp. 119–45.

Buelsa, M., Heijs, J. and Kahwash, O. 2009. *La calidad de las universidades en España: elaboración de un índice multidimensional*. Madrid: Minerva ediciones.

Carey, K. 2006. College rankings reformed: the case for a new order in higher education, *Education Sector Reports*. Washington DC: www.educationsector.org/usr_doc/CollegeRankingsReformed.pdf (Accessed 11 April 2012.)

Cave, M., Hanney, S., Henkel, M. and Kogan, M. 1997. *The Use of Performance Indicators in Higher Education: The Challenge of the Quality Movement*. London: Jessica Kingsley Publishers.

Cheng, Y. and Liu, N.C. 2008. Examining major rankings according to the Berlin Principles, *Higher Education in Europe*, 33(2–3): 201–08.

Clarke, M. 2002. Some guidelines for academic quality rankings, *Higher Education in Europe*, 27(4): 443–59.

Cuenin, S. 1987. The use of performance indicators in universities: an international survey, *International Journal of Institutional Management in Higher Education*, 11(2): 117–39.

Cyrenne, P. and Grant, H. 2009. University decision making and prestige: an empirical study, *Economics of Education Review*, 28(2): 237–48.

DGEI. 2011. *Reporte del ranking ARWU 2011: Presencia de la UNAM y del grupo de universidades iberoamericanas*, 16 August 2011.

DGEI. 2012. *La complejidad del logro académico: Estudio comparativo sobre la Universidad Nacional Autónoma de México y la Universidad de Sao Paulo.* Preliminary document. Mexico City: DGEI-UNAM.

Diamond, N. and Graham, H.D. 2000. How should we rate research universities? *Change*, 32(4): 20-33.

Díaz Barriga, Á., Barrón Tirado, C. and Díaz Barriga Arceo, F. 2008. *Impacto de la evaluación en la educación superior mexicana*. Mexico City: UNAM-IISUE; Plaza y Valdés.

Dill, D. 2006. *Convergence and Diversity: The Role and Influence of University Rankings*. Keynote Address presented at the Consortium of Higher Education Researchers (CHER) 19th Annual Research Conference, 9 September 2006, University of Kassel, Germany.

Dill, D. and Soo, M. 2005. Academic quality, league tables, and public policy: a cross-national analysis of university ranking systems, *Higher Education Review*, 49(4): 495–533.

Elliott, J. 2002. La reforma educativa en el Estado evaluador, *Perspectivas*, XXXII(3): 1–20.

Espeland, W.N. and Sauder, M. 2007. Rankings and reactivity: how public measures recreate social worlds, *American Journal of Sociology*, 113(1): 1–40.

Ewell, P.T. 1999. Assessment of higher education quality: promise and politics, S.J. Messick (ed.) *Assessment in Higher Education: Issues of Access, Quality, Student Development, and Public Policy*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 147–56.

Federkeil, G. 2008a. *Graduate Surveys as a Measure in University Rankings*. Presentation at OECD, Outcomes of Higher Education. Quality, Relevance and Impact, París: www.oecd.org/dataoecd/4/16/41217828.pdf (Accessed 11 April 2012.)

Federkeil, G. 2008b. Rankings and quality assurance in higher education, *Higher Education in Europe*, 33(2/3): 219–31.

Filip, M. (ed.) 2004. *Ranking and League Tables of Universities and Higher Education Institutions. Methodologies and Approaches*. Bucarest: UNESCO-CEPES: www.cepes.ro/publications/pdf/Ranking.pdf

Florian, R.V. 2007. Irreproducibility of the results of the Shanghai Academic ranking of world universities, *Scientometrics*, 72(1): 25–32.

Goldstein, H. and Myers, K. 1996. Freedom of information: towards a code of ethics for performance indicators, *Research Intelligence*, 57: 12–16.

Hazelkorn, E. 2007. Impact and influence of league tables and ranking systems on higher education decision-making, *Higher Education Management and Policy*, 19(2): 87–110.

Hazelkorn, E. 2008. Learning to live with league tables and ranking: the experience of institutional leaders, ***Higher Education Policy***, 21(2): 193–215.

IESALC (International Institute for Higher Education in Latin America and the Caribbean). 2011. *The Position of Latin America and the Caribbean on Rankings in Higher Education*. Fourth Meeting of University Networks and Councils of Rectors in Buenos Aires, 5–6 May 2011, IESALC.

Ishikawa, M. 2009. University rankings, global models, and emerging hegemony: critical analysis from Japan, *Journal of Studies in International Education*, 13(2): 159–73.

Jaienski, M. 2009. Garfield's demon and 'surprising' or 'unexpected' results in science, *Scientometrics*, 78(2): 347–53.

Kogan, M. (ed.) 1989. *Evaluating Higher Education*. Papers from the International Journal of Institutional Management in Higher Education. Paris: OECD.

Liu, N.C. and Cheng, Y. 2005. The academic ranking of world universities, *Higher Education in Europe*, 30(2): July.

Lloyd, M. 2010. Comparative study makes the case for Mexico´s public universities, *The Chronicle of Higher Education*, 11 November 2010.

Marginson, S. 2007. Global university rankings: implications in general and for Australia, *Journal of Higher Education Policy and Management*, 29(2): 131–42.

Marginson, S. 2009. University rankings, government and social order: managing the field of higher education according to the logic of the performative present-as-future, M. Simons, M. Olssen and M. Peters (eds) *Re-reading Education Policies: Studying the Policy Agenda of the 21st Century*. Rotterdam: Sense Publishers, pp. 2–16.

Marginson, S. and Van der Wende, M. 2006. *To Rank or to be Ranked: The Impact of Global Rankings in Higher Education*. University of Twente-Centre for Higher Education Policy Studies: www.studiekeuzeenranking.leidenuniv.nl/content_docs/paper_marginson_van_der_wende.pdf (Accessed 11 April 2012.)

Marginson, S. and Ordorika, I. 2010. *Hegemonía en la era del conocimiento: competencia global en la educación superior y la investigación científica*. Mexico City: SES/UNAM.

McCormick, A.C. 2008. The complex interplay between classification and ranking of colleges and universities: should the Berlin Principles apply equally to classification?' *Higher Education in Europe*, 33(2/3): 209–18.

Mendoza Rojas, J. 2002. *Transición en la educación superior contemporánea en México: de la planeación al Estado evaluador*. Mexico City: UNAM-CESU/Miguel Ángel Porrúa.

Merisotis, J. and Sadlak, J. 2005. Higher education rankings: evolution, acceptance, and dialogue, *Higher Education in Europe*, 30(2): 97–101.

Ordorika, I. and Pusser, B. 2007. La máxima casa de estudios: Universidad Nacional Autónoma de México as a state-building university, P.G. Altbach and J. Balán (eds) *World Class Worldwide: Transforming research universities in Asia and America*. Baltimore: Johns Hopkins University Press, pp. 189–215.

Ordorika, I. and Rodríguez, R. 2008. Comentarios al Academic Ranking of World Universities 2008, *Cuadernos de Trabajo de la Dirección General de Evaluación Institucional,* year 1, no. 1.

Ordorika, I., Lozano Espinosa, F.J. and Rodríguez Gómez, R. 2009. Las revistas de investigación de la UNAM: un panorama general, *Cuadernos de Trabajo de la Dirección General de Evaluación Institucional*, year 1, no. 4.

Odorika, I. and Rodríguez, R. 2010. El ranking Times en el mercado del prestigio universitario, *Perfiles Educativos*, XXXII(129).

Palomba, C.A. and Banta, T.W. 1999. *Assessment Essentials: Planning, Implementing and Improving Assessment in Higher Education*. San Francisco: Jossey-Bass.

Power, M. 1997. *The Audit Society*. Oxford: Oxford University Press.

Provan, D. and Abercromby, K. 2000. *University League Tables and Rankings: A Critical Analysis*. Commonwealth Higher Education Management Service (CHEMS), document no. 30: www.acu.ac.uk/chems/onlinepublications/976798333.pdf

Puiggrós, A. and Krotsch, P. (eds) 1994. *Universidad y evaluación. Estado del debate*. Buenos Aires: Aique Grupo Editor/Rei Argentina/Instituto de Estudios y Acción Social.

QS World University Rankings. 2010: www.topuniversities.com/university-rankings/world-university-rankings/2010; 2011: www.topuniversities.com/university-rankings/world-university-rankings; Latin America University Ranking 2011: www.topuniversities.com/university-rankings/latin-american-university-rankings/2011 (Accessed 11 April 2012.)

QS. 2011/2012. QS University Rankings: Latin America 2011/2012. QS Intelligence Unit: http://content.qs.com/supplement2011/Latin_American_supplement.pdf (Accessed 11 April 2012.)

Roberts, D. and Thomson, L. 2007. Reputation management for universities: university league tables and the impact on student recruitment, *Reputation Management for Universities*, Working Paper Series, no. 2. Leeds: The Knowledge Partnership.

Rodríguez Gómez, R. 2004. Acreditación, ¿ave fénix de la educación superior?, I. Ordorika (ed.) *La academia en jaque. Perspectivas políticas sobre la evaluación de la educación superior en México*. Mexico City: UNAM/Miguel Ángel Porrúa, pp. 175–223.

Rowley, D.J., Lujan, H.D. and Dolence, M.G. 1997. *Strategic Change in Colleges and Universities: Planning to Survive and Prosper*. San Francisco: Jossey-Bass.

Salmi, J. and Saroyan, A. 2007. League tables as policy instruments: uses and misuses, *Higher Education Management and Policy*, 19(2): 24–62.

Sanoff, A.P. 1998. Rankings are here to stay: colleges can improve them, *Chronicle of Higher Education*, 45(2): http://chronicle.com/

Siganos, A. 2008. Rankings, governance, and attractiveness of higher education: the new French context, *Higher Education in Europe*, 33(2-3): 311–16.

Strathern, M. 2000. The tyranny of transparency, *British Educational Research Journal*, 26(3): 309–21.

Thakur, M. 2008. The impact of ranking systems on higher education and its stakeholders, *Journal of Institutional Research*, 13(1): 83–96.

Turner, D.R. 2005. Benchmarking in universities: league tables revisited, *Oxford Review of Education*, 31(3): 353–71.

UNAM (Universidad Nacional Autónoma de México). 2011a. Agenda Estadística. Mexico City: UNAM: www.planeacion.unam.mx/Agenda/2011/ (Accessed 11 April 2012.)

UNAM. 2011b. *Un Siglo de la Universidad Nacional de México 1910-2010: Sus heullas en el espacio a través del tiempo*. Mexico City: Instituto de Geografía-UNAM.

UNESCO. 1998. *World Declaration on Higher Education for the Twenty-First Century: Vision and Action*. World Conference on Higher Education, UNESCO, Paris, 9 October 1998.

Usher, A. and Savino, M. 2006. A world of difference: a global survey of university league tables, *Canadian Education Report Series*: www.educationalpolicy.org/pdf/World-of-Difference-200602162.pdf (Accessed 11 April 2012.)

Van der Wende, M. 2009. Rankings and classifications in higher education: a European perspective, J.C. Smart (ed.) *Higher Education: Handbook of Theory and Research*, vol. 23. New York: Springer, pp. 49–72.

Van Raan, A.F.J. 2005. Fatal attraction: conceptual and methodological problems in the ranking of universities by bibliometric methods, Scientometrics, 62(1), 133–43.

Vaughn, J. 2002. Accreditation, commercial rankings, and new approaches to assessing the quality of university research and education programmes in the United States, *Higher Education in Europe*, 27(4): 433–41.

Villaseñor García, G. 2003. La evaluación de la educación superior: su función social, *Reencuentro*, 36: 20–29.

Webster, D.S. 1986. *Academic Quality Rankings of American Colleges and Universities*. Springfield, Mass.: Charles C. Thomas.

Ying, Y. and Jingao, Z. 2009. An empirical study on credibility of China's university rankings: a case study of three rankings, *Chinese Education and Society*, 42(1): 70–80.