



United Nations
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Rankings and Accountability in Higher Education

Uses and Misuses

EDUCATION ON THE MOVE



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Rankings and Accountability in Higher Education

Uses and Misuses

P.T.M. Marope, P.J. Wells and E. Hazelkorn (eds)

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Foreword

This book is the first of a series of studies that will consider trends in education today and challenges for tomorrow. This new series has been created to respond to demand from policy-makers, educators and stakeholders alike for state-of-the-art analyses of topical issues. As the world's leading agency on educational matters, UNESCO is at the forefront of the intellectual debate on the future of learning, with an unparalleled capacity to bring together trailblazers from across the globe.

University rankings are one such issue. Since the turn of the millennium – and in particular following the release in 2003 of the Academic Ranking of World Universities by Shanghai Jiao Tong University in China and the *Times Higher Education* World University Rankings in 2004 – there has been a huge increase in the attention paid to this topic in the mainstream media. In May 2012, Universitas 21 were the latest to join the throng with the launch of the U21 Ranking of National Higher Education Systems in forty-eight countries.

UNESCO has followed closely the evolution of university rankings, having previously published volumes on ranking methodologies (2005) and the related issue of the 'world-class university' (2007 and 2009). The Organization does not advocate the pursuit by universities of 'world-class' status or high rankings as goals in themselves; rather, it aims primarily to build capacity for responsible development, dissemination and informed use of rankings and league tables, based on the recommendations of the 2009 UNESCO World Conference on Higher Education.

With this in mind, UNESCO together with the Organisation for Economic Co-operation and Development (OECD) and the World Bank organized the 'Global Forum on Rankings and Accountability in Higher Education: Uses and Misuses' at its Paris Headquarters on 16 and 17 May 2011. The forum re-confirmed the fact that the advent of mass higher education and proliferation of new institutional models in the sector over recent decades has resulted in a welcome and unprecedented expansion of access and choices in supply, while at the same time raising questions over the validity

and quality of provision. This has led in turn to many higher education stakeholders – including students, researchers, teachers, policy-makers and funding agencies – floundering or becoming confused over the quality of what is on offer.

Inspired by the Forum, the current volume brings together both promoters and opposers of rankings, to reflect the wide range of views that exist in the higher education community on this highly controversial topic. If learners, institutions and policy-makers are to be responsible users of ranking data and league table lists, it is vital that those compiling them make perfectly clear *what* criteria they are using to devise them, *how* they have weighted these criteria, and *why* they made these choices. It is hoped that this information will enable stakeholders to make informed decisions on higher education institutions.

UNESCO is very grateful to the authors who contributed to this thought-provoking volume, which will help to improve mutual responsibility in the use and values of higher education rankings and put an end to their distortion and misuse. The editors' efforts in pulling the different articles together and ensuring that they form a coherent and stimulating whole are also appreciated.

A handwritten signature in black ink, appearing to read 'Qian Tang', with a stylized flourish extending to the right.

Qian Tang, Ph.D.

Assistant Director-General for Education

University Rankings: The Many Sides of the Debate

Mmantsetsa Marope and Peter Wells

The emergence of university rankings

The practice of university rankings dates back to around 1900 with the publication in England of *Where We Get Our Best Men*. This study examined the backgrounds of the country's most prominent and successful men of the time with particular reference to where each studied, and as a consequence providing a list of universities ranked by the number of distinguished alumni they could lay claim to (Myers and Robe, 2009). Despite the fact that the practice was soon emulated in other countries it was more or less met with disinterest and little debate outside of closeted academic corridors. Other studies followed over the next eighty years – largely of graduate programmes – using a bewildering array of criteria, but again passing relatively unnoticed by society at large.

The general disinterest in university rankings began to change in 1983 with the publication of 'America's Best Colleges' by the *US News and World Report*. For the first time information about undergraduate programmes in America's higher education institutions was made widely and publicly available to the country's high school population and their parents via a widely read popular medium. A decade later, in 1993, the first 'Times Good University Guide' was published in the United Kingdom, prompting – as had happened previously in the United States – public debate as to which institutions fared better or worse in the guide. The 1990s later witnessed diverse lists, league tables and rankings around the world, numbering everything from specialist subject schools, to MBA programmes and private institutions, provoking as a result increasing wrangling and scrambling for positions on such lists, as well as scepticism from those institutions that appeared or did not appear on them.

The tide of attention paid to university rankings, however, well and truly swept over the sector a decade later in 2003 with the release of the Academic Ranking of World Universities (ARWU) by Shanghai Jiao Tong University in China and the *Times Higher Education* World University Rankings a year later. The topic has rarely been out of higher education headlines and the mainstream media ever since. At the same time, the topic has progressively attracted more and more anti-ranking debates, initiatives and even bodies. As is evident in this volume, the debate on whether or not universities should be ranked has not abated.

To rank or not to rank?

The explosion of university rankings perhaps signals the reality that we live in a compared and ranked world. The twenty-first century is increasingly compared and ranked along a myriad of dimensions. Based on levels of GDP, countries are designated as part of either the first, second or third worlds, and are ranked as developed, developing or least-developed, based on a complex cluster of indicators. They are accorded human development rankings – low, medium, medium-high or high – and are ranked on income as being low, middle, middle-high or high-income countries. They are also ranked on their knowledge economy readiness, the purposeful use of ICT, their levels of global competitiveness, perceived levels of corruption and more. Comparisons and rankings go far beyond the macro level of ‘worlds’ and countries, to the meso level of institutions such as restaurants, schools, hospitals, airports, banks and, of course, universities.

Universities are among our canonical twenty-first century institutions. In and of themselves, they are standard setters for how other aspects of our ‘worlds, countries and institutions’ are compared and ranked. It therefore seems inevitable that universities would themselves be subjected to comparisons and rankings. However, being complex institutions and being part of complex systems, it seems equally inevitable that comparisons and rankings of universities would be anything but polemical.

Comparing and even ranking our ‘worlds, countries and institutions’ impels the construction and use of common ‘yardsticks’ along whose gradations these entities can be placed. Yet, unlike length, height and width, these ‘yardsticks’ are used to measure very complex, often multi-faceted, fast-changing, contextually varied and even conceptually contentious phenomena. For

instance, what is ‘development’? How varied are conceptualizations of development? How solid or shaky is the ground on which those who number our worlds on the basis of their development stand and why are their numberings accepted? Whom and what purpose do their numberings serve? Do they serve those with the power to number the worlds, countries and institutions, those who are numbered, or both? And if the power-base for numbering these entities was to shift, could the worlds, countries and institutions be re-numbered? Clearly these same questions can be asked of any ranked list, including those of higher education institutions.

By necessity, the use of common ‘yardsticks’ to compare and rank anything – worlds, universities, hospitals, schools, restaurants, gymnasias, student performance on examinations, individual intelligence quotients and so on – simplifies what are otherwise complex and dynamic realities. Yet these ‘yardsticks’ are not only pervasive, they are constantly used to make daily choices and even complex decisions. Whether it is the fairly risk-free choice of a restaurant, the potentially life-changing educational choice of a child’s kindergarten or university, or a life-saving judgement when choosing a hospital for a major operation, comparisons and rankings centrally inform our daily decisions. As will become apparent in the following chapters, comparisons and rankings substantially influence not only individual decisions, but also collective decisions. Specific to universities, the influence of comparisons and rankings goes beyond individuals’ choices of universities to country policy, strategic and investment priorities, and even to countries’ strategic positioning and the competitiveness of their higher education institutions.

The question therefore seems to be less about whether or not universities should be compared and ranked, but the manner in which this is undertaken. Do the ‘yardsticks’ used to compare and rank universities fit the purpose? And what is this purpose? Is it clearly delineated and communicated to potential stakeholders? Where the latter is clear and transparent, it can be hoped that an informed and discerning stakeholder-user will understand the merits and limitations of the ‘yardsticks’, and can consequently benefit from an appreciation of both. These are the questions.

Focus of the volume

This inaugural volume of UNESCO’s *Education on the Move* Series is a product of the UNESCO ‘Global Forum on University Rankings: Their Uses and Misuses’,

held at UNESCO Headquarters in Paris on 16 and 17 May 2011. As a whole, the series focuses on critical and even potentially controversial and polemical issues in education. UNESCO has undertaken to lead global dialogues on these issues with the express aim of advancing public understanding of these issues and facilitating the informed use of knowledge generated from such issues by diverse stakeholders.

University rankings feature highly among the hotly debated issues in education. Accordingly, UNESCO has followed closely the evolution of this trend particularly over the last decade as it has developed momentum and mounting discourse. UNESCO has previously published volumes on ranking methodologies (2005) and the questionably related issue of the ‘world-class university’ (2007 and 2009). However, its role has never been one of advocating any individual published national or global rankings. Consistent with its functions as a neutral broker of knowledge and as a clearing house of ideas, UNESCO’s primary aim has been to encourage the responsible development, transparent articulation, communication, dissemination and use of university rankings and of league tables, given a received appreciation that such lists will continue to form part of the twenty-first century higher education sphere.

This specific volume contributes to the development of discerning stakeholders in the evolution as well as the potential uses and misuses of university rankings. It brings together a selection of key voices and diverse perspectives in the ongoing debate on the ranking of higher education institutions. The volume addresses the following key questions:

- What are the key methodological considerations of university rankings?
- What are the merits and therefore potential usefulness of university rankings?
- What are the limitations and therefore potential pitfalls in the use of university rankings?
- What alternative instruments may complement university rankings?
- How best can diverse stakeholders benefit from university rankings and other complementary instruments?

Overview of the volume

Methodological considerations of university rankings

The book is divided into four parts. Part I comprises three chapters that elaborate the methodological approaches used by three of the most prominent 'ranking houses'. It adopts a critical introspective approach and presents not only the methodologies, but also their evolution as well as their strengths and shortcomings. Consistent with UNESCO's intention to develop discerning stakeholders, Part I informs the reader and/or user what they can and cannot expect to get when they use the university rankings from these three 'ranking houses'. The three explicitly highlight the limited coverage of their 'world university rankings' as they focus on about 200 (or 1 per cent) of the nearly 17,000 world universities. Although varied in many respects, the 200 ranked universities have much in common:

[They publish] 'world-class' research carried out across national borders; they work with global industry; they teach from undergraduate to doctoral level; and they compete in a global market for the top students and academic talent (Baty, 2012).

The ranking houses also recognize that the scope of the currently main rankings is thus limited:

different global rankings have different purposes and they only measure parts of universities' activities. Bibliometric rankings focus on research output, and URWU emphasizes the research dimension of universities also (Liu, 2012).

The fact that rankings only embrace 1 per cent of the world's universities, and that they focus on research and even then mostly scientific research, has attracted immense criticism from diverse stakeholders (see Parts II, III and IV). For their part the ranking houses have neither been deaf to nor blind of this criticism. Part I presents their earnest efforts to not only admit and explain the scope of their methodologies, but also to demonstrate a willingness to progressively improve on them to better cover what is commonly known as the scope of university functions – research, teaching and social responsibility.

The new *Times Higher Education World University Rankings*, first published on 16 September 2010 and again on 6 October 2011

recognize a wider range of what global universities do... the *THE* world university rankings seek to capture the full range of a global university's activities – research, teaching, knowledge transfer and internationalisation... Perhaps the most dramatic innovation for the world university rankings for 2010 and beyond is the set of five indicators designed to give proper credit to the role of teaching in universities with a collective weighting of 30 per cent (Baty, 2012).

While these methodological improvements speak well of the ranking houses as learning institutions, critics point to this methodological evolution as a source of longitudinal incomparability of rankings and therefore a weakness in itself. Yet, for the user of rankings, the fact that more or less the same universities appear more or less in the same ranked position suggests a fair measure of stability even as methodologies evolve.

Refreshingly, the ranking houses also recognize that no matter how much they expand the base of indicators considered in their methodologies, they can never exhaustively cover the full range of the universities' functions and activities. By their very nature indicators are selective and not exhaustive. As such, they responsibly caution that,

none of the current global ranking systems can provide a complete view of universities; taking any single ranking as a standard to judge a university's overall performance is improper (Liu, 2012).

UNESCO commends this note of caution to the user of rankings. It subscribes to the use of rankings in complementarity with other credible sources of information on the quality of a university, such as presented in Part III, including quality enhancement efforts, evidence of value addition to learners, quality assurance and universities' evidence-based self-reporting on their quality.

The merits and demerits of rankings

It can safely be said that the explosion of interest in rankings has been outmatched by the volume of criticism from virtually all spheres, including academics, universities, policy-makers, development agencies, education service providers and students (Parts II and III). Diverse as these constituents may be, they mostly start with an acknowledgement that 'love them or hate them, rankings are here to stay'. On the positive side, rankings address the growing demand for accessible, manageably packaged and

relatively simple information on the 'quality of higher education institutions'. This demand is greatly fuelled by the need to make informed choices of universities, within a context of massification of higher education and the widely growing diversity of providers. The growing base of stakeholders also fuels this demand. Students use the information to choose where to study, just as their parents and governments use it to place children in the 'best' universities. Donors use rankings to best place their endowments so as to realize the best potential value for their investments. The private sector likewise uses them to identify promising partner institutions in higher education, as do faculty when identifying research collaborators. Policy-makers and universities themselves turn to rankings to learn more about the strengths of their higher education institutions and to identify potential areas for improvement. Governments also often use them to gauge the global standing of their institutions and therefore their competitiveness. However, as highlighted by Liu in Chapter 1, rankings are not and should not be used as the sole source of information that guides decisions pertaining to the quality of universities.

Simplifying the complex, dynamic and multi-faceted quality of higher education institutions has been a consistent criticism of university rankings. At the same time, the simplicity of rankings has promoted the accountability of 'ranking houses', impelling them to explain their methodologies with mature and critical introspection. While the adequacy with which they do so could be arguable, it is unmistakable that there is growing transparency on their part on what their rankings can and cannot tell us. Simplicity has also sparked a healthy and much needed national and global dialogue on the quality of higher education institutions, how to best capture it and how to communicate it to stakeholders. As exemplified in this very volume, serious debate is a good source of knowledge creation and innovation. The range of complementary methodologies for assessing, comparing, communicating and even improving the quality of universities exemplified in Part III of this book speaks to this innovation.

Notably, rankings have also encouraged transparency of information and accountability of these hallowed institutions, which hitherto have been cloaked in exclusivity, academic freedoms and even restrictive prestige. More and more, universities find themselves having to explain to the public their performance on set criteria used by rankers and other quality monitoring bodies. Rankings 'have led to a revolution in the availability of data on higher education institutions and intelligence to guide institutional and government strategies for higher education' (Sowter, 2012).

Several chapters here demonstrate the potential ‘pull-up factor’ on universities that appear lacking in some of the criteria used for rankings. On the other hand, for those that ‘do well’ rankings can be a powerful incentive for sustaining quality enhancement forces. Other voices documented reveal how diverse universities and countries have used rankings to benchmark their institutions and to inform the policy dialogue that drives improvements and even the reforms of their overall higher education systems. Rankings can therefore be indirect tools for driving excellence in higher education (Hapsah, 2012).

Critics argue that rankings can draw universities’ attention away from teaching and social responsibility towards research or even scientific research. However, ‘ranking houses’ acknowledge that they focus their attention on research-focused universities, and thus are expanding their indicators to take into account teaching. What perhaps is at issue here is whether there should be rankings that emphasize other functions. Such developments could facilitate the building of reliable indicators and databases on the quality of research and social responsibility.

There have also been concerns that by applying a limited set of criteria to world universities and given the strong desire to feature in the top 200 universities, rankings could actually ‘McDonaldize’ higher education institutions and render them irrelevant to their immediate contexts. However, evidence equally shows that higher education institutions are mature, sophisticated and complex enough to balance responsiveness to the imperatives of globalization with responsiveness to the demands of their immediate contexts (Downing, 2012). Invariably, universities are found to use rankings as a supplementary rather than as a sole assessment of their quality. This is in line with the complementarity of tools advocated in this volume.

Rankings are said to favour the advantage enjoyed by the 200 best-ranked institutions. These tend to be older (200+ years) established institutions with 25,000 students or more, 2,500 faculty or more, and with endowments of over US\$ 1 billion and annual budgets of more than US\$2 billion. However, this is a distraction from the focus of rankings, which emphasizes quality at the pinnacle and not so much the process of getting there. The two are both legitimate questions; however, rankings should be critiqued on what they set out to do rather than on what the critics want them to do. In any case, if characteristics of the top-ranked universities do not come together to make for a ‘world-class’ higher education institution, then the obvious question is ‘which characteristics could possibly do’?

For the most part, rankings are criticized for how they are used rather than on what they claim they do. Granted, unwise use of rankings is a source of great concern, but the remedy to this challenge is public education of users as purported in this book and not the elimination of rankings. The Malaysian experience with rankings demonstrates how, with progressive understanding of the merits and demerits of rankings, countries and by implication regions can adapt rankings to make them responsive to their contexts:

As the issues surrounding rankings became clearer the government has taken a more holistic view about ranking. The Minister of Higher Education has expressly articulated that universities should not be ‘obsessed with ranking’ (Khaled Nordin, 2011)... Instead the government is focusing more on making the education system ‘world class’ to accommodate the increasing entrants to higher education. Under the Economic Transformation Programme (PEMANDU), several initiatives have been identified for improving the supply as well as demand side to increase access and enhance quality towards making Malaysia a global education hub. Consequently in implementing the Ninth Plan, the selection of research universities was completed (Hapsah, 2012)

A further criticism of rankings is that they divert resources from building ‘world-class’ higher education systems towards building ‘world-class’ higher education institutions. This is yet another issue of usage rather than of rankings per se. It is quite difficult to envisage the possibility of having ‘world-class’ higher education systems without ‘world-class’ higher education institutions. The artificial partitioning of the two asks the right question for the wrong reasons. The right question regarding how best we can have a ‘world-class’ higher education system absolutely has to be asked. It is a question with a powerful equity imperative that recognizes that *all* deserve quality higher education. But the wrong reason that rankings should be abolished because they encourage the building of world-class universities and not world-class higher education systems simply separates the chicken from the egg. A critical question that none of the critics ask is: How can countries attain and sustain world-class universities and higher education systems and do so with sustainable resource efficiency?

Lastly, since performance in rankings can have an impact on ability to generate funding and partnerships, there is a perverse incentive for universities to inflate their performance in order to climb up the ranking ladder. This is a legitimate concern and one that generally comes with any high-stakes

assessment mechanism. Verifying the validity of information that universities provide to ‘ranking houses’ is a challenge that needs urgent attention by those who use that information to rank institutions.

Complementary instruments to rankings

As noted, an indirect contribution of rankings is that they have stimulated complementary methodologies that share in common the effort to address the above-outlined weaknesses. As with the rankings, they themselves are not without their limitations. UNESCO presents these selected methodologies for assessing the quality of higher education institutions and/or systems as tools that should complement rankings. It does not present them as ‘cures’ to the maladies of rankings, but rather again as a balanced presentation of these methods and an honest presentation of their strengths and weaknesses.

One of the arguably more ambitious approaches outlined here is an attempt by the OECD to draw international comparisons of the learning outcomes of higher education graduates. This dimension certainly speaks more to the capacity of institutions to contribute to national development agendas and to the personal and social fulfilment of students after graduation. The strength of such a study is the focus it could place on the importance of developing contextually relevant and demanding higher education learning outcomes.

Moving from the institutional to the systemic level, the World Bank proposes a benchmarking approach to run a ‘health check’ on tertiary education systems around the world. As with all benchmarking exercises, the purpose of the approach is said to not create a list of winners and losers, but to offer a way for national higher education systems to compare themselves to others of similar design, disposition and context, and from this starting point to develop strategies for improvements. By looking at the system as a whole rather than its constituent institutions the suggestion is that policy-makers can elaborate a long-term vision for their tertiary strategy. Such a holistic-therapy approach to the health of a system does, however, run the risk of bypassing fundamental shortcomings at the institutional patient level – treatable conditions that still need to be addressed in concert with other complementary quality assessment tools if the body system is to function properly. If indeed benchmarking is a ‘cure’, the reader should take it with the full knowledge of its potential side effects; as indeed most cures tend to come with some!

Finally, with its stresses on the ‘multi-dimensionality’ of tertiary education, the U-Multirank project provides another transparency tool that is unashamedly user-driven and allows for a broader analysis of the diversity of tertiary institutions – not only those research intensive winners which dominate the traditional ranked lists. Encapsulating the perspective that modern higher education institutions are ‘predominantly multi-purpose, multiple-mission organisations undertaking different mixes of activities (teaching and learning, research, knowledge exchange, regional engagement, and internationalisation’ (van Vught and Ziegele, 2012) the U-Multirank project is another welcome addition to the institutional comparison toolkit.

Invoking the mantra that ‘no one size fits all’, one must be conscious of the fact that, admirable as these additional quality measuring techniques may be, they, like ranking initiatives, should not be taken in isolation or considered definitive. Clearly their level of sophistication compared to the crude rankings of the last century is at once impressive, even beguiling. Yet, they still cannot lay claim to capturing every individual characteristic and nuance of every individual institution they seek to compare.

The advent of massification in higher education has driven the modern university to stand out from the crowd, to innovate, to be creative and to offer something new and different. In short, they have been emboldened not to compete, but to be unique. Ironically, it is an institution’s very ability to depart from the standards and norms measured by benchmarks and rankings that is the true test of its status as a leading quality higher learning provider for the twenty-first century.

Conclusion

As a neutral broker of knowledge, UNESCO’s role is not to endorse any of the above ranking methodologies, the diverse perspectives on rankings or the complementary approaches to them. What UNESCO does seek to do here is to identify and explore the critical issues inherent to the ranking phenomenon and to give the microphone of debate to the various stakeholders so that they may share their views on improving the generation and application of university rankings.

To that end, UNESCO welcomes the clear convergence of opinion on what ranking tables can and cannot tell us from both the users and compilers of

university rankings in this publication. The key challenge now is to ensure that this message reaches the ultimate readers of rankings and league tables – be they students, governments or institutional leaders – so that they in turn may become better informed and more discerning users of such transparency tools.

Ultimately, it matters little whether a stated comparative objective is to ‘rank’, ‘list’, ‘score’, ‘benchmark’ or ‘map’. If such initiatives, regardless of their results or the controversies they provoke, raise the profile and importance of addressing the need for quality monitoring and quality enhancement in higher education, then they have indirectly proven their worth.

As noted above, comparisons and rankings are in the DNA of 21st century life. The world is overflowing with ranked lists, from the ‘top 10 must-see cities’ to the ‘top 5 grossing movies’, some of which are based on indisputable facts while others are more nebulous and subjective in their opinions. It is consequently vital to retain some perspective when interpreting such lists. The bestselling movies do not necessarily win critics’ approval or industry accolades. Similarly, billions of people will never visit the world’s ‘must-see’ tourist attractions. This does not belittle the information; it simply renders it reflective rather than definitive. The same reflection is therefore called for with modern university rankings.

The 15,000+ institutions around the world that have not, do not and will not appear on any ‘top’ list of universities continue their noble pursuits of educating and nurturing learners hungry for knowledge and skills; of contributing to the development of human and social capital; and of undertaking important research for sustainable futures. Obsessing about joining and climbing a league table or becoming ‘world-class’ ignores the greater role, purpose and mission of higher learning institutions. This once again points to the central tenet of this volume in the plea for a responsible and informed use of university rankings. In her opening address to the ‘Global Forum on Rankings’, the Director-General of UNESCO offered a timely reminder:

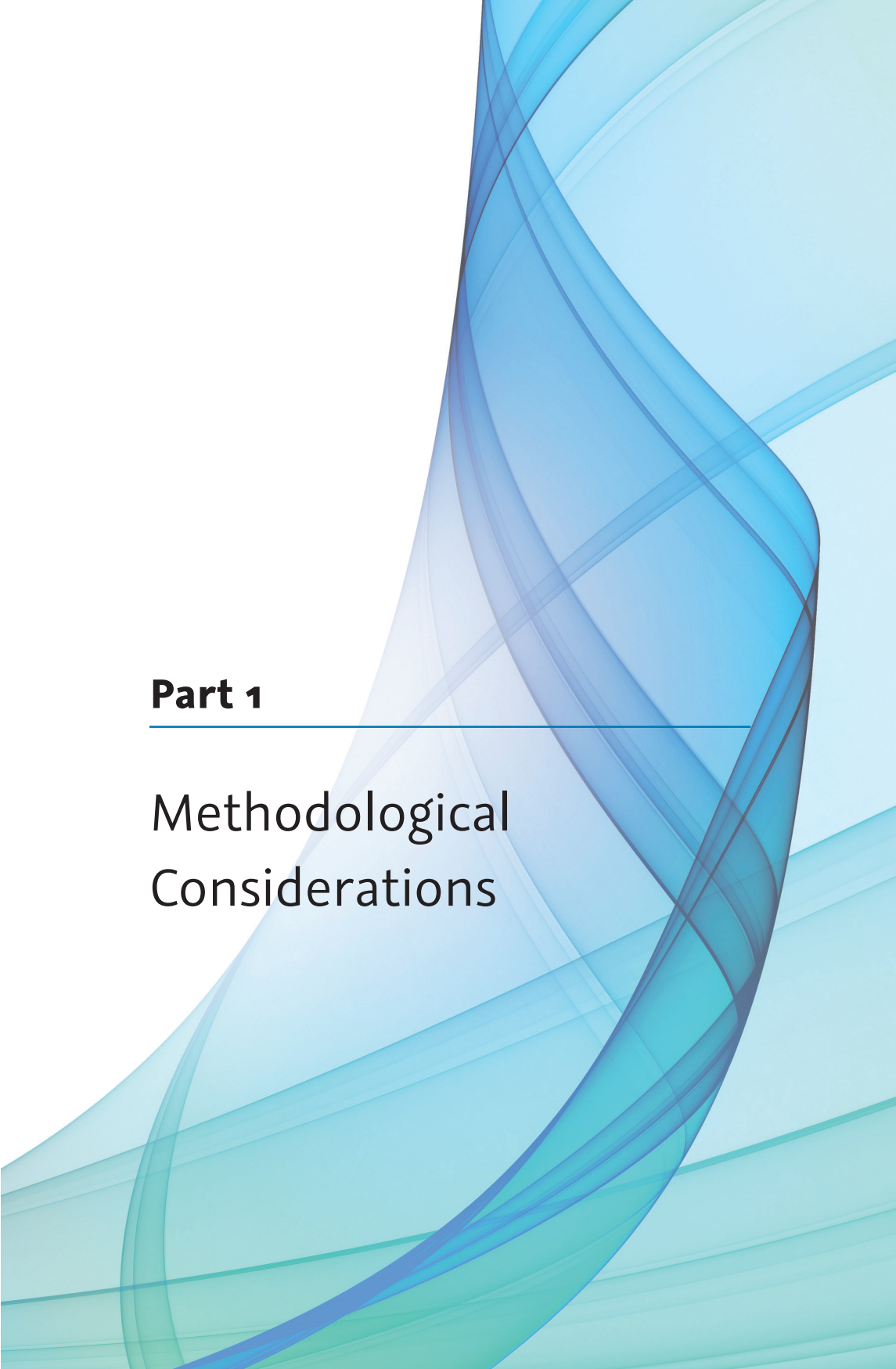
University rankings are a hotly debated issue. They are viewed in very different ways by rankers, students, employers, pre-university level schools and the higher education community. It is good to see that international rankings are diversifying and moving towards more broadly balanced criteria and becoming multidimensional, as are national rankings... While competition and international comparisons can be positive trends, a key challenge for us in UNESCO is to continue

promoting the values of higher education and the three main missions of the university: research, teaching and community service.

The modern ranking era seems unwittingly to have been punctuated by a decade-dependent series of key evolutions in 1983, 1993 and 2003. It is hoped that this UNESCO volume will mark the maturing of university rankings in 2013, and further define a period of improved responsibility in the creation, dissemination and application of higher education rankings.

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Part 1

Methodological Considerations

Chapter 1

The Academic Ranking of World Universities and its future direction

Nian Cai Liu

History of Academic Ranking of World Universities

The Chinese dream of world-class universities

In order to meet the challenges of globalization and the knowledge-based economy and accelerate China's modernization, the Chinese leadership placed its hopes in the higher education field, including a number of national research universities. At the 100th anniversary of Peking University in May 1998, the then president of China issued a declaration that the country would have several world-class universities. The result was the 985 Project, set up to build world-class universities in China. In the same year, the Chinese government selected Shanghai Jiao Tong University to be among the first group of nine universities to take part in the project. In fact, many top Chinese universities at this time drew up strategic goals and timetables for becoming world-class universities, and Shanghai Jiao Tong University was no exception. As a professor and Vice-Dean of the School of Chemistry and Chemical Engineering of the university, I became involved in the strategic planning process of developing Shanghai Jiao Tong University into a world-class university and was later on appointed as Director of the Office of Strategic Planning of the university.

I asked myself many questions during this process. What is the definition of a 'world-class university'? How many world-class universities should there be globally? What are the positions of top Chinese universities in world university rankings? How can top Chinese universities reduce the gap between themselves and world-class universities? In order to answer these questions we began to benchmark top Chinese universities with world-class universities. This eventually resulted in a ranking of world universities.

Positioning of Chinese universities

From 1999 to 2001, Dr Ying Cheng, two other colleagues and I worked on the project to benchmark top Chinese universities with four groups of US universities, from the very top to the less-known research universities, according to a wide spectrum of indicators of academic or research performance. According to our estimates, the positions of top Chinese universities fell within the 200–300 bracket globally. The results of these comparisons and analyses were used in the strategic planning process of Shanghai Jiao

Tong University. Eventually, a consultation report was written and provided to the Ministry of Education of China.

The publication of the report resulted in numerous positive comments, many of which invoked the possibility of undertaking a real ranking of world universities. We also received encouragement from visitors and colleagues from different parts of the world who, having learned about our study, encouraged us to perform world rankings. They reminded us that universities, governments and other stakeholders in the rest of the world were interested in the quantitative comparison of world universities.

Ranking of world universities

I decided to undertake the ranking project and the Academic Ranking of World Universities (ARWU) was completed two years later in early 2003, and published on our website in June of the same year¹.

Ever since its publication, ARWU has attracted worldwide attention. Numerous requests have been received asking us to provide a ranking of world universities by broad subject fields/schools/colleges and by subject fields/programmes/departments. We have tried to respond to these requests. The Academic Ranking of World Universities by Broad Subject Fields (ARWU-FIELD) and the Academic Ranking of World Universities by Subject Fields (ARWU-SUBJECT) were published in February 2007 and October 2009 respectively.

Unexpected impact

Although the initial purpose of ARWU was to ascertain the global standing of top Chinese universities in the world higher education system, it has attracted a lot of attention from universities, governments and public media worldwide. Mainstream media in almost all major countries has reported on ARWU. Hundreds of universities have cited the ranking results in their campus news, annual reports and promotional brochures. A survey on higher education published by *The Economist* referred to ARWU as 'the most widely used annual ranking of the world's research universities' (*The Economist*, 2005). Burton Bollag (2006), a reporter at *Chronicle of Higher Education* wrote that ARWU 'is considered the most influential international ranking'.

1 The ARWU website address www.arwu.org changed to www.shanghairanking.com in 2009.

One of the main factors behind the impact of ARWU is its globally sound and transparent methodology. It uses a few carefully selected, objective criteria and internationally comparable and verifiable data. The *EC Research Headlines* reported, ‘The universities were carefully evaluated using several indicators of research performance’ (*EC Research Headlines*, 2003). Chancellor of Oxford University, Chris Patten, said ‘the methodology looks fairly solid... it looks like a pretty good stab at a fair comparison’ (Patten, 2004).

ARWU has been widely cited and employed as a starting point for identifying national strengths and weaknesses as well as for facilitating reform and setting new initiatives (e.g. Destler, 2008). Martin Enserink (2007) referred to ARWU and argued in his paper published in *Science* that ‘France’s poor showing in the Shanghai ranking... helped trigger a national debate about higher education that resulted in a new law... giving universities more freedom’.

Methodologies of ARWU

Ranking criteria and weights for ARWU

In total, more than 2,000 institutions have been scanned and about 1,200 institutions have actually been ranked. Universities are ranked by several indicators of academic or research performance, including alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers, papers published in *Nature* and *Science*, papers indexed in major citation indices, and the per capita academic performance of an institution. Table 1 shows the indicators and weights for ARWU.

Table 1. Indicators and weights for ARWU

Criteria	Indicator	Code	Weight
Quality of education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research output	Papers published in <i>Nature</i> and <i>Science</i> *	N&S	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	PUB	20%
Per capita performance	Per capita academic performance of an institution	PCP	10%
Total			100%

* For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered, and the weight of N&S is relocated to other indicators.

For each indicator, the highest scoring institution is assigned a score of 100, and other institutions are calculated as a percentage of the top score. Scores for each indicator are weighted to arrive at a final overall score for an institution. The highest scoring institution is assigned a score of 100, and other institutions are calculated as a percentage of the top score. An institution's rank reflects the number of institutions that sit above it.

Ranking criteria and weights for ARWU-FIELD

Five broad subject fields are ranked in ARWU-FIELD, including Natural Sciences and Mathematics, Engineering/Technology and Computer Sciences, Life and Agriculture Sciences, Clinical Medicine and Pharmacy, and Social Sciences. Arts and Humanities were not ranked because of the technical difficulties in finding internationally comparable indicators with reliable data. Psychology and other cross-disciplinary fields were not included in ARWU-FIELD because of their interdisciplinary complexity.

Similar to ARWU, institutions in each broad subject field are ranked according to their academic or research performance. Ranking indicators include alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers, and articles indexed in the Science Citation Index-Expanded and the Social Science Citation Index. Two new indicators were introduced: the percentage of articles published in the top 20 per cent of journals of each field, and engineering research expenditure. Furthermore, the time span for calculating Award and Alumni indicators has been changed. Table 2 shows the indicators and weights for ARWU-FIELD.

Ranking criteria and weights for ARWU-SUBJECT

Five subject fields are ranked in ARWU-SUBJECT, including Mathematics, Physics, Chemistry, Computer Sciences and Economics/Business. Similar to ARWU and ARWU-FIELD, institutions are ranked according to their academic or research performance in each subject field. Ranking indicators include alumni and staff winning Nobel Prizes, Fields Medals and Turing Awards, highly cited researchers, papers indexed in the Science Citation Index-Expanded and the Social Science Citation Index, and the percentage of papers published in the top 20 per cent of journals in each subject field. Table 3 shows the indicators and weights for ARWU-SUBJECT.

Table 2. Indicators and weights for ARWU-FIELD

Code	Weight	SCI	ENG	LIFE	MED	SOC
Alumni	10%	Alumni of an institution winning Fields Medals in mathematics and Nobel Prizes in Chemistry and Physics since 1961	Not Applicable	Alumni of an institution winning Nobel Prizes in Physiology or Medicine since 1961	Alumni of an institution winning Nobel Prizes in Physiology or Medicine since 1961	Alumni of an institution winning Nobel Prizes in Economics since 1961
Award	15%	Staff of an institution winning Fields Medals and Nobel Prizes in Chemistry and Physics since 1961	Not Applicable	Staff of an institution winning Nobel Prizes in Physiology or Medicine since 1961	Staff of an institution winning Nobel Prizes in Physiology or Medicine since 1961	Staff of an institution winning Nobel Prizes in Economics since 1961
HiCi	25%	Highly cited researchers in five categories: Mathematics Physics Chemistry Geosciences Space Sciences	Highly cited researchers in three categories: Engineering Computer Science Materials Science	Highly cited researchers in eight categories: Biology and Biochemistry Molecular Biology and Genetics Microbiology Immunology Neuroscience Agricultural Sciences Plant and Animal Science Ecology/ Environment	Highly cited researchers in three categories: Clinical Medicine Pharmacology Social Sciences, General (Partly)	Highly cited researchers in two categories: Social Sciences, General (Partly) Economics/ Business
PUB	25%	Papers indexed in Science Citation Index-Expanded in SCI fields	Papers indexed in Science Citation Index-Expanded in ENG fields	Papers indexed in Science Citation Index-Expanded in LIFE fields	Papers indexed in Science Citation Index-Expanded in MED fields	Papers indexed in Social Science Citation Index in SOC fields
TOP	25%	Percentage of papers published in top 20% of journals of SCI fields compared to that in all SCI journals	Percentage of papers published in top 20% of journals of ENG fields compared to that in all ENG journals	Percentage of papers published in top 20% of journals of LIFE fields compared to that in all LIFE journals	Percentage of papers published in top 20% of journals of MED fields compared to that in all MED journals	Percentage of papers published in top 20% of journals of SOC fields compared to that in all SOC journals
Fund	25%	Not Applicable	Total engineering-related research expenditures	Not Applicable	Not Applicable	Not Applicable

Note: SCI for Natural Sciences and Mathematics, ENG for Engineering/Technology and Computer Sciences, LIFE for Life and Agriculture Sciences, MED for Clinical Medicine and Pharmacy, and SOC for Social Sciences.

Table 3. Indicators and weights for ARWU-SUBJECT

Code	Weight	Mathematics	Physics	Chemistry	Computer science	Economics/ Business
Alumni	10%	Alumni of an institution winning Fields Medals in Mathematics since 1961	Alumni of an institution winning Nobel Prizes in Physics since 1961	Alumni of an institution winning Nobel Prizes in Chemistry since 1961	Alumni of an institution winning Turing Awards in Computer Science since 1961	Alumni of an institution winning Nobel Prizes in Economics since 1961
Award	15%	Staff of an institution winning Fields Medals in Mathematics since 1961	Staff of an institution winning Nobel Prizes in Physics since 1961	Staff of an institution winning Nobel Prizes in Chemistry since 1961	Staff of an institution winning Turing Awards in Computer Science since 1961	Staff of an institution winning Turing Awards in Computer Science since 1961
HiCi	25%	Highly cited researchers in Mathematics category	Highly cited researchers in Physics and Space Science category	Highly cited researchers in Chemistry category	Highly cited researchers in Computer Science category	Highly cited researchers in Economics/ Business Category
PUB	25%	Papers indexed in Science Citation Index-Expanded in Mathematics fields	Papers indexed in Science Citation Index-Expanded in Physics fields	Papers indexed in Science Citation Index-Expanded in Chemistry fields	Papers indexed in Science Citation Index-Expanded in Computer Science fields	Papers indexed in Social Science Citation Index in Economics/ business fields
TOP	25%	Percentage of papers published in top 20% of journals of Mathematics fields compared to that in all Mathematics journals	Percentage of papers published in top 20% of journals of Physics fields compared to that in all Physics journals	Percentage of papers published in top 20% of journals of Chemistry fields compared to that in all Chemistry journals	Percentage of papers published in top 20% of journals of Computer Science fields compared to that in all Computer Science journals	Percentage of papers published in top 20% of journals of Economics/ Business fields compared to that in all Economics/ Business journals

Definition of indicators

Alumni are the total number of alumni of an institution who have won Nobel Prizes and Fields Medals. Alumni are defined as those who have obtained bachelor, Master's or doctoral degrees from the institution. Different weights are set according to the periods of obtaining degrees: 100 per cent for degrees obtained in 2001–2010, 90 per cent for degrees obtained in 1991–2000, 80 per cent for degrees obtained in 1981–1990, and so on, and finally 10 per cent for degrees obtained in 1911–1920. If a person obtained more than one degrees from an institution, the institution is considered once only.

Award refers to the total number of staff of an institution who have won Nobel Prizes in Physics, Chemistry, Medicine and Economics and Fields Medal in Mathematics. The staff are defined as those who work at an institution at the time of winning the prize. Different weights are set according to the periods of winning the prizes: 100 per cent for winners in 2001–2010, 90 per cent for winners in 1991–2000, 80 per cent for winners in 1981–1990, 70 per cent for winners in 1971–1980, and so on, and finally 10 per cent for winners in 1911–1920. If a winner is affiliated with more than one institution, each institution is assigned the reciprocal weighting. For Nobel Prizes, if more than one person shares a prize, weights are set for winners according to their proportion of the prize.

The calculation of Award and Alumni indicators has been changed For ARWU-FIELD and ARWU-SUBJECT, with only alumni or laureates post-1961 considered. The weight is 100 per cent for 2001–2010, 80 per cent for 1991–2000, 60 per cent for 1981–1990, 40 per cent for 1971–1980 and 20 per cent for 1961–1970. The Turing award is used for subject ranking of computer science.

HiCi is the total number of highly cited researchers in twenty-one subject categories. These individuals are the most highly cited researchers within each category. The definition of categories and detailed procedures can be found at the website of Thomson ISI.

N&S is the total number of papers published in *Nature* and *Science* in the last five years. To distinguish the order of author affiliation, a weight of 100 per cent is assigned for corresponding author affiliation, 50 per cent for first author affiliation (second author affiliation if the first author

affiliation is the same as corresponding author affiliation), 25 per cent for the next author affiliation, and 10 per cent for other author affiliations. Only published articles and Proceedings papers are considered.

PUB is the total number of papers indexed in the Science Citation Index-Expanded and the Social Science Citation Index in the last year. Only published articles and Proceedings papers are considered. When calculating the total number of papers of an institution, a special weight of two was introduced for papers indexed in the Social Science Citation Index.

PCP is the weighted scores of the above five indicators divided by the number of full-time equivalent academic staff. If the number of academic staff for institutions of a country cannot be obtained, the weighted scores of the above five indicators are used.

TOP is the percentage of papers published in the top 20 per cent of journals in each field or subject. The top 20 per cent of journals are defined as their impact factors in the top 20 per cent of each ISI category according to the Journal Citation Report. Papers in the top journals of each ISI category are aggregated into relevant fields or subjects for the calculation of TOP. Only published articles and Proceedings papers are considered. If the number of papers of an institution is too small to meet a minimum threshold, the TOP indicator is not calculated for the institution and its weight is relocated to other indicators.

FUND is the total engineering-related research expenditures for the past year. This indicator is only used for ENG ranking. If the data for all institutions of a country cannot be obtained, the FUND indicator will not be considered for the institutions and its weight will be relocated to other indicators.

Results and analysis

The list of the top 500 institutions for ARWU is published on the website. Taking into consideration the significance of differences in the total score, ARWU is published in groups of fifty institutions in the range of 100 to 200 and groups of 100 institutions in the range of 200 to 500. In the same group, institutions are listed in alphabetical order. Table 4 shows the average performance of institutions in different ranking groups by indicator.

Table 4. Average performance of institutions by indicator

	Alumni	Award	HiCi	N&S	PUB
Top 100	2.95	1.56	30.0	57.1	3 900
101–200	0.38	0.14	7.6	14.6	2 350
201–300	0.21	0.03	3.3	7.0	1 750
301–400	0.16	0.02	2.0	3.9	1 200
401–500	0.07	0.01	0.9	2.5	1 050

The list of top 100 institutions for ARWU-FIELD and ARWU-SUBJECT is published on the website. Taking into consideration the significance of differences in the total score, ARWU-FIELD and ARWU-SUBJECT are published in groups of twenty-five institutions in the range of 51 to 100. In the same group, institutions are listed in alphabetical order.

Phenomena of global university rankings

The boom in global university rankings

Almost one year and a half after the first publication of ARWU, the *Times Higher Education Supplement* published its 'World University Rankings' in November of 2004. After 2005, the ranking was co-published by *Times Higher Education* and Quacquarelli Symonds Company every year as THE-QS World University Rankings. The THE-QS ranking indicators include an international opinion survey of academics and employers (40 per cent weight for academics and 10 per cent weight for employers), student faculty ratio (20 per cent), citations per faculty member (20 per cent) and proportions of foreign faculty and students (5 per cent weight for each) (THE-QS, 2009). In 2010, *Times Higher Education* terminated its collaboration with Quacquarelli Symonds and both began to publish their own global ranking lists. While the new QS ranking fully retained the methodology of previous THE-QS rankings, the *Times Higher Education* ranking increased its number of indicators to thirteen and Thomson Reuters became its data provider (*Times Higher Education*, 2010).

Bibliometric indicators have been widely used to measure research productivity and performance of universities, and several global university rankings were made using this approach. They include the 'Performance Ranking of Scientific Papers for World Universities' published by the Higher Education

Evaluation and Accreditation Council of Taiwan since 2007 (Huang, 2007), the 'Bibliometric Rankings of World Universities' by Moed (2006), and 'World Top Universities' by the Research Center for Chinese Science Evaluation of Wuhan University (2006).

There have been other global university rankings. The 'Ranking Web of World Universities' by the Cybermetrics Lab of CSIC (2004) uses a series of web indicators to rank 16,000 universities worldwide. A French higher education institution, École des Mines de Paris (2007), published the 'Professional Ranking of World Universities' by calculating the number of alumni among the Chief Executive Officers of the 500 leading worldwide companies. In December 2011, the University Ranking by Academic Performance Center of Middle East Technical University (2011) announced the world's top 2,000 universities based on six indicators of research output. Up to now, more than a dozen global university rankings have been published.

Methodological problems of global university rankings

Different global rankings have different purposes, and they only measure parts of universities' activities. Bibliometric rankings focus on research output, while ARWU also emphasizes the research dimension of universities. These systems do not assess well the fundamental role of universities – teaching – and their contributions to society. Although the THE-QS ranking tries to measure multi-faceted universities by combining indicators of different activities, including some proxies of teaching quality, its practice largely failed to convince others and the ranking was taken as a measure of reputation and 'not about teaching and only marginally about research' (Marginson, 2007). Therefore, none of the current global ranking systems can provide a complete view of universities. Taking any single ranking as a standard to judge a university's overall performance is improper.

For the moment none of the ranking indicators is perfect; while some seem practically acceptable, others have serious flaws. The so-called 'Academic Peer Review' used by THE-QS ranking might be the indicator most often criticized. First, it is an expert opinion survey rather than a typical peer review in academic community; the respondents, even though they are experts, can hardly make professional judgments on such large entities in their entirety. (Van Raan, 2007). Second, psychological effects such as the 'halo effect' (Woodhouse, 2008) and the 'leniency effect' (Van Dyke, 2008) affect the results of the opinion survey, so that there is a bias towards well-known universities and respondents' universities.

Bibliometric indicators such as publications and citations are relatively credible for measuring the research performance of large entities, but problems and shortcomings still occur when they are used to compare universities worldwide. Many global rankings choose *Thomson Citation Indexes* as their bibliometric sources, therefore only publication output and only those published in indexed journals are taken into account. This inevitably leads to some bias against universities with strong humanities and social sciences departments and universities from non-English-speaking countries.

Marginson (2007) criticized teaching-related indicators, such as student faculty ratio and percentages of international faculty and students, mainly because they cannot be used to adequately measure teaching quality. Some indicators can be seen as proxies of teaching output, for example, number of alumni among CEOs of top 500 companies and number of alumni who win Nobel Prizes or Fields Medals. But as the measured objects were restricted within a tiny group, they say little about the general quality of teaching output.

Some general criticisms on ranking practices hold true for global rankings. A common phenomenon in global rankings is the arbitrary decision of weights of indicators. Another criticism is that the difference between scores for universities with different global ranks may be statistically insignificant.

Use of global university rankings

Global university rankings, although of interest to prospective students and employers, receive most of their attention from governments and universities themselves. With the emergence of the knowledge-based economy, research universities are expected to play a key role in building the core competitiveness of countries. Therefore national governments are eager to know the strengths and weaknesses of national universities at the global level – information that was not readily available prior to the emergence of global rankings. Global rankings provide comparative information on university performance in different countries, which helps governments to ascertain the international standings of universities. While some nations were satisfied with the global rankings of their universities, others began to sense a crisis. As Jan Figel, the European Commissioner for Education, said to the media, ‘If you look at the Shanghai index, we are the strongest continent in terms of numbers and potential but we are also shifting into a secondary position in terms of quality and attractiveness’ (Blair, 2007). Nowadays there is a clear trend for more and more nations to declare their

ambition to have a certain number of universities among the top tier in the world, regardless of their current standing. Furthermore, more and more nations are using rankings as policy instruments for higher education reform and even resource allocation.

Whether universities admit it or not, they care about rankings. For better-placed universities, global rankings are effective tools for building and maintaining reputations, both of which are important for attracting talent and resources and gaining support from the general public. Conversely, poor performance of universities (as compared with expectations) and absences in global rankings may have a negative impact. Because of the significant influence of global rankings, climbing up the ladder has become a common desire of universities. In a survey of leaders and senior managers of higher education institutions in forty-one countries, Hazelkorn (2011) found that 82 per cent of respondents wanted to improve their international position and 71 per cent wanted to be among the top quarter in the world. At the same time, over 56 per cent of respondents said that their universities had established a formal internal mechanism to monitor rankings and their own performance, and 63 per cent had already taken strategic, managerial or academic action in response to rankings.

Future direction of Academic Ranking of World Universities

Updating rankings annually

As the first multi-indicator ranking of global universities, ARWU has provided trustworthy performance information on universities in different countries for eight years. Students have used ranking results to select places to study, universities have used them to benchmark themselves against peers and to set up strategic priorities, national policy-makers have used them to compare education strengths and promote reforms, and researchers have used them to select samples for various analysis and studies. In order to continue meeting these needs, we will update ARWU, ARWU-FIELD and ARWU-SUBJECT every year. In addition, we will keep changes in ranking methodology to a minimum to allow comparison of performance of particular universities or countries across years.

Improving the methodology

ARWU has tried to rank research universities in the world by academic or research performance based on internationally comparable third-party data that are verifiable by all. Nevertheless, there are still many methodological and technical limitations. Methodological limitations include the balance of research with teaching and service in ranking indicators and weights, the inclusion of non-English publications, the selection of awards, and the experience of award winners. Technical limitations exist in the definition of institutions, data searching and cleanup of databases, and the attribution of publications to institutions and broad subject fields. We have endeavoured to study the above-mentioned limitations and improve our methodology.

In order to better consider the function of education within ARWU, we are currently collecting data on the educational experiences of senior executives in *Fortune Global 500* corporations, as the number of senior executive alumni could be a good indicator of educational outcome of institutions. To resolve the field imbalance in statistics of international academic awards, we selected a list of around eighty international academic awards and are working to classify them according to academic prestige and degree of internationality. Furthermore, we keep a close eye on the development of advanced ranking techniques and new international databases, and feasibility studies are carried out whenever possible.

Diversifying the ranking

We are also studying the possibility of providing more diversified ranking lists, particularly rankings for different types of universities with different functions, disciplinary characteristics, history, size and budget, as well as other factors. These studies are not being done on the basis of new methodology or new indicators, but through various classifications of universities. For instance, we have published a classification of ARWU top 500 universities by disciplinary characteristics, in which universities are classified according to dominance in certain fields, such as engineering or medicine (Cheng and Liu, 2006). These classifications allow separate lists of universities of the same type to be extracted from ARWU. Following the same idea, we plan to develop classifications of universities from different perspectives to enable a variety of comparisons among similar universities.

ARWU provides a list of 500 universities. This covers less than 5 per cent of all 15,000 higher education institutions in the world (the number of higher

education institutions was reported in the World Higher Education Database 2011).² Hence, 95 per cent of higher education providers, especially those in less developed countries, are invisible in the ranking. To help remedy this, we plan to develop regional university rankings such as rankings of universities in Eastern Europe, South America, Africa or China. These regional rankings will not only adopt the indicators used in ARWU, but will also consider other indicators relevant to the region that may reflect universities' global competitiveness, directly or indirectly.

Profiling research universities

Since January 2011, we have cooperated with the Global Research University Profile (GRUP) project, which aims to develop a database compiling facts and figures of around 1,200 global research universities ranked by ARWU annually. An online survey tool has been designed to collect the basic information of universities such as number of academic staff, number of students, total income, research income and so on. We sent survey invitations to 1,200 universities and promised to provide participating institutions with an analysis report based on data collected from all respondent institutions. In the invitation letter we also explain that their data may be used to develop customized rankings. The number of universities participating in the survey has been very encouraging so far. In addition to the survey, we have managed to obtain data from national education statistics agencies in major countries, including the National Center for Education Statistics in the United States; the Higher Education Statistics Agency in the United Kingdom; and the Department of Education, Employment and Workplace Relations in Australia.

Although the comparability and quality of the survey data may not be as good as that of data obtained from third parties, more useful indicators can be developed to meet increasing demand to compare global universities from various perspectives. We plan to employ the survey data and third-party data to design a web-based platform in which users will be able to select from a large variety of indicators and weights to compare the universities concerned. In addition, we will undertake in-depth analysis of the survey data in order to describe the characteristics of world-class universities and research universities in different countries and worldwide. We hope that the results will enhance our understanding of world-class universities and will be helpful when initiating or adjusting relevant policies.

2 For further information, see: www.unesco.org/iau/directories/index.html

Contributing to the optimal development of university ranking in general

We have been undertaking theoretical research on rankings in general, seeking to contribute to the understanding of rankings. We have also actively participated in international societies related to ranking, such as the International Observatory on Academic Ranking and Excellence (iREG).³ An ongoing effort of this organization is to conduct audits of existing ranking systems. It is expected that the audit will urge rankers to compile and publish rankings more responsibly and help users to identify the quality of different rankings and wisely use rankings to inform various decisions.

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3 For further information, see: www.ireg-observatory.org

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Chapter 2

An evolving methodology:
the *Times Higher Education*
World University Rankings

Phil Baty

Historical overview

The first ever global university ranking, produced by Shanghai Jiao Tong University, appeared in 2003. A year later, in 2004, the *Times Higher Education (THE)* magazine published its first global university ranking, and has continued to do so ever since. Although a second runner up, *THE* was the first global ranking of universities to sample the views of academics across the world, as well as to include the latest measures of research excellence and teaching capacity.

A lead article marking the inaugural publication of the World University Rankings by the *Times Higher Education (THE)* magazine, then known as the *Times Higher Education Supplement*, noted that a global ranking was ‘an idea whose time has come’. Not only had the time come, it is set to stay, and *Times Higher Education* foresees its own sustained contribution to this effort.

The publication emphasized that leading United Kingdom (UK) universities were increasingly defining their success against global competitors, and noted that:

unlike domestic university league tables, this ranking does not set out to steer students towards the best undergraduate education: it looks at institutions in the round. Despite the importance of overseas students to universities, international comparisons inevitably centre mainly on research... the positions will... be used as ammunition by politicians and vice chancellors in funding negotiating (*Times Higher Education*, 2004: 14).

The initial methodology used by *THE* was simple. There were five performance indicators: a staff-student ratio (weighted at 20 per cent) designed to give a sense of the ‘teaching capacity’ at each institution; an academic reputation survey (weighted at 50 per cent); an indicator of research quality based on citations (20 per cent); and two measures of internationalization (worth 10 per cent), one looking at the proportion of international staff on campus, and the other looking at the proportion of international students.

Evolution of the ranking methodology

The world university rankings proved to be a major success, gaining an increasing global reach and influence. But with growing influence came growing scrutiny of the rankings and their methodology. Aware of increasing criticism of the rankings methodology, during 2009, a new senior editorial team

at the *Times Higher Education* magazine carried out a comprehensive review of the rankings. The review concluded that the rankings the magazine had been publishing successfully since 2004 were no longer fit for the purposes being assigned to them. Ann Mroz, then editor of *Times Higher Education*, explained in an editorial in the magazine on 5 November 2009 that:

Global rankings have always been used by students to choose where to study, by staff to look at career opportunities and by research teams seeking new collaborative partners... But in recent years the [world rankings] have become extraordinarily influential, used by institutions to benchmark themselves against global competitors and even by governments to set their national higher education agendas.

The responsibility weighs heavy on our shoulders. We are very much aware that national policy and multimillion-pound decisions are influenced by these rankings. We are also acutely aware of the criticisms made of the methodology. Therefore, we feel we have a duty to improve how we compile them.

Higher education is global. *Times Higher Education* is determined to reflect that. Rankings are here to stay. But we believe universities deserve a rigorous, robust and transparent set of rankings – a serious tool for the sub-sector, not just an annual curiosity (Mroz, 2009, 5).

That month, the magazine ended its six-year relationship with its previous rankings data supplier, QS – Quaquarelli Symonds, and set up a new partnership with Thomson Reuters, one of the world's leading data companies. Thomson Reuters was engaged to build a new database of global, research-driven univer-

sities, and to work with *Times Higher Education* to develop a new, more sophisticated way of ranking universities. A new brand – the *Times Higher Education* World University Rankings, powered by Thomson Reuters – was created. *Times Higher Education* would take full responsibility for the rankings methodology, and undertook to rank the institutions, while Thomson Reuters would collect, analyse and supply the data, but would not itself publish a ranking.

Survey findings

74 per cent of respondents said they believed that 'institutions manipulate their data to move up in ranking'.

71 per cent of respondents said that rankings 'make institutions focus on numerical comparisons rather than on education students'.

70 per cent of respondents said that rankings use 'methodologies and data' that are 'neither transparent nor reproducible'.

Key methodological concerns

In order to help develop the new ranking system, in early 2010, *Times Higher Education* held a meeting of its expert editorial advisory board, to discuss concerns about rankings. Three strong concerns were raised about the original THE-QS methodology of world university rankings published between 2004 and 2009.

First, was the heavy weight (20 per cent) that had been assigned to a staff-student ratio as the only proxy for teaching quality in the old ranking system. It was not seen as a particularly helpful or valid indicator of teaching quality, and it was believed that data was easily manipulated.

Second was the quality and value of reputational surveys of academics and employers, and concerns about the size and quality of the samples. There were further concerns that excessive weight was given to results of such subjective reputational surveys, which made up 50 per cent of the overall rankings indicators in the 2004–2009 ranking system.

Andrejs Rauhvargers later reiterated this concern in a June 2011 report from the European University Association, entitled *Global University Rankings and their Impact*. He noted that the reputation scores in the 2004–2009 ranking system were based on ‘a rather small number of responses: 9,386 in 2009 and 6,534 in 2008; in actual fact, the 3,000 or so answers from 2009 were simply added to those of 2008. The number of answers is pitifully small compared to the 18,000 email addresses used’ (Rauhvargers, 2011: 28). Rauhvargers also raised concerns that the lists of universities that survey respondents were asked to select from were incomplete: ‘What are the criteria for leaving out a great number of universities or whole countries?’ (Rauhvargers, 2011: 29)

The third concern was actually raised by the *Times Higher Education* editorial board and related to the use of citations data to indicate research excellence. Given the wide variety of publication habits, and therefore given the wide variety of citation volumes between different disciplines, *Times Higher Education* was advised to normalize the citations data by subject. No normalization was carried out under the 2004–2009 ranking system, meaning that institutions with strengths in areas with typically lower citation volumes, such as engineering and the social sciences, were at a serious disadvantage compared to those with strengths in the life sciences, where citation levels tend to be much higher.

In another important step towards improving the method for developing a new ranking system, Thomson Reuters carried out a global opinion survey

to find out what higher education professionals thought of existing ranking systems. Specifically the survey sort to establish the indicators they valued and any concerns they may have had. The results, published by Thomson Reuters in the report *New Outlooks on Institutional Profiles*, were illuminating. In the survey, many respondents raised a number of concerns about the existing rankings. A disconcerting finding was that a significant proportion of respondents (74 per cent) suggested that world rankings have perverse incentives for institutions that perceived themselves as unfavourably ranked. They believed that these institutions manipulated their data in order to move up the ranks. While indirect, this incentive cast serious doubt on the integrity of the methodology and therefore its results.

Perceived value of rankings

Despite the above-outlined concerns, respondents overall had strong support for the utility of university rankings. From a self-selected sample of respondents, 40 per cent found analytic comparisons between academic institutions to be either 'extremely useful' or 'very useful'. A further 45 per cent found them 'somewhat useful'.

Times Higher Education took the survey as a clear indication that, despite the inherent problems with reducing all the complex and often intangible activities of a university into a single ranked table, the limitations of global ranking systems are outweighed by their perceived general usefulness.

It however needs to be acknowledged that any ranking system will have significant limitations. Ranking methods, no matter how good, cannot fully capture all or many of the aspects that matter most in higher education. Of particular challenge are those aspects that are hard to measure; for instance, the life-transforming effects that a great lecturer can have on students' lives, and the enormity with which free enquiry enhances our societies. Not only are these aspects hard to measure, but also the methodologies and indicators used to capture them can be quite subjective and susceptible to subjective judgement. Caution also needs to be sounded that, if not cautiously used, rankings can impose uniformity on a sub-sector that thrives on diversity. They can pervert university missions and distract policy-makers. For instance, when very simple proxy indicators, such as a staff-student ratio, are given too much weight in any ranking methodology, they can be manipulated for unfair gain. However, when appropriately constructed and with a larger mix of indicators and a focus on indicators that reflect real-world performance, many of the pitfalls associated with university rankings can be minimized,

although never totally eliminated. The real risks associated with the methodologies, scope and use of rankings place a lot of responsibility and accountability on ranking houses, and almost compel the establishment of a code of conduct for these hallowed houses.

What should ranking houses do?

The *Times Higher Education* holds that as long as rankers are responsible and transparent, as long as they invest properly in serious research and sound data, as long as they are frank about the limitations of the proxies they employ, and as long as they help to educate their users and engage in open debates, rankings can be a positive force in higher education.

University rankings can significantly enhance global understanding of dramatic changes faced by the sub-sector. According to the OECD, 3.9 million students are currently studying outside their home countries. The number is predicted by many to increase to as many as 7 million in the next few years. There are now at least 200 satellite campuses set up outside their parent universities' home countries according to the Observatory of Borderless Education. Around 40 per cent of the millions of research papers published in the last five years by *Times Higher Education's* top 200 institutions were co-authored with an international research partner.

We are entering a world of mass higher education and the traditional world order is shifting. Massification of higher education is made possible by the diversification not only of providers, but also of programmes and, possibly, their quality. If based on defensible and clearly explained methodologies, rankings can help to fill a crucial information gap. Often students as consumers in a competitive global market need comparative information on the institutions they may seek to study at. Faculty, who are increasingly mobile across national borders, also need information to identify potential new research partners and career opportunities. University leaders need benchmarking tools to help forge institutional strategies. National governments need comparative information to help determine higher education policies. Industry needs information to establish where to invest in university research and innovation. Carefully selected and appropriately suited indicators can provide rankings that address information needs of such different clientele.

Other than identifying methodological contentions and perceived uses of rankings, the Thomson Reuters survey report, *New Outlooks on Institutional Profiles*, also presented information indicators that begin to address the information needs

of particular clientele. For instance, some 92 per cent of survey respondents noted that faculty output (as measured by research publications) was a ‘must have’ or a ‘nice to have’ indicator. There was also strong support (91 per cent) for a measure of faculty impact (research paper citations). Some 86 per cent wanted faculty/student ratios as a proxy measure of the teaching environment. Another 84 per cent supported the use of income from research grants. Surprisingly, 79 per cent of respondents supported the use of peer ‘reputation’ measures – the controversial opinion polls that have provoked strong criticism.

Times Higher Education’s new methodology

In developing a new rankings system with Thomson Reuters, *Times Higher Education* sought to directly address the concerns outlined above. This meant going back to basics to consider how to capture as many characteristics as possible of the global research-led university, across all of its core missions.

Methodological improvements to *THE’s* rankings have to be considered against the reality that its world university rankings consider only a particular type of university. In officially ranking just 200 institutions, *THE* focuses on about 1 per cent of the world’s higher education institutions. The world top 200 list may incorporate institutions with different cultures, histories, sizes, shapes, funding and governing structures, but they all share core characteristics: they publish world-class research carried out across national borders, they work with global industry, they teach from undergraduate to doctoral level, and they compete in a global market for the top student and academic talent.

The rankings therefore cover only global research-driven universities. There are many other different models of university, all of which can achieve excellence in the context of their own aims and missions. Many different models could be deemed absolutely successful in their own terms, but they would be unlikely to find places at the top of the world university rankings.

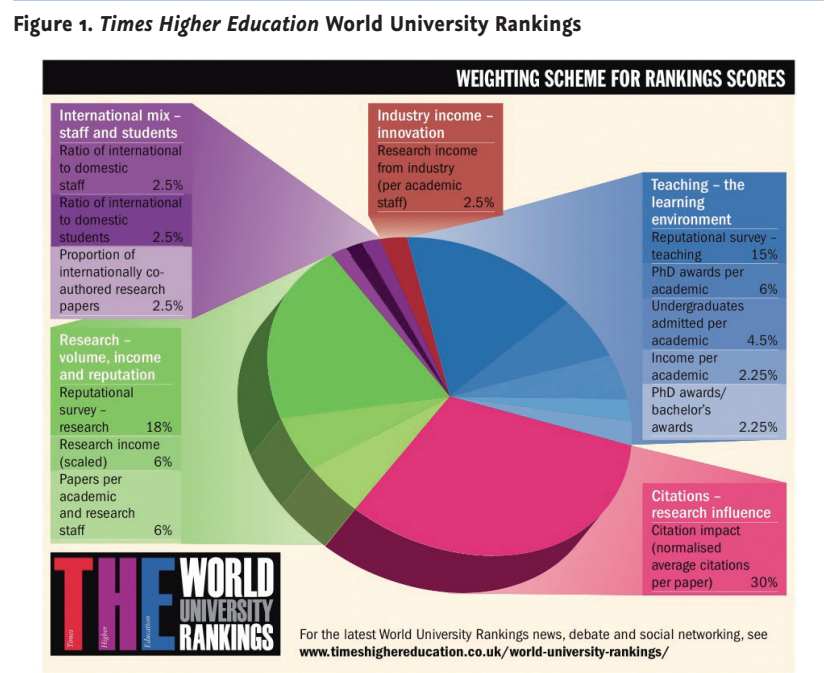
Times Higher Education has data on many hundreds of institutions; however, its official rankings list comprises only the first 200 placed universities. This is done specifically to undermine the notion that everyone should aspire to the same model. *Times Higher Education* recognizes that one of the strengths of the higher education system is its diversity. It is keen to emphasize that it does not deem it appropriate to judge every university on the same scale against the model set by the universities such as Harvard and Stanford and Oxford and Cambridge. Not every institution can be a Harvard and not every institution would want

to be. Each institution of course will have its own mission and its own priorities for development, serving in some cases a largely teaching-led role, and in others focusing on local or national skills needs. *Times Higher Education's* World University Rankings examine only a globally competitive, research-led elite.

The *Times Higher Education* World University Rankings were finalized only after ten months of open consultation, and the methodology was devised with expert input from more than fifty leading figures from fifteen countries, representing every continent.

The new *Times Higher Education* World University Rankings, first published on 16 September 2010, and again on 6 October 2011, recognize a wider range of what global universities do. While the Academic Ranking of World Universities, compiled by Shanghai Jiao Tong University, really focus only on research performance, the *Times Higher Education* World University Rankings seek to capture the full range of a global university's activities – research, teaching, knowledge transfer and internationalization.

Consistent with its aim to take a more holistic view of the mission of universities, the new *THE* rankings use thirteen separate indicators – more than any other global system (Figure 1).



Times Higher Education World University Rankings place the most weight on a range of research indicators. This is deemed an appropriate approach in a world where governments invest heavily in developing the knowledge economy and seek answers to global challenges such as climate change and food security. Research indicators may include reputation (assessed through an improved professional academic reputation survey), volume (assessed through publication in leading academic journals indexed by Thomson Reuters) and income. However, the highest weighting is given to 'research influence' measured by citations of published research by academics worldwide. Citations indicate which research has stood out, been picked up and built on by other scholars, and most importantly, has been shared among the global scholarly community, thereby pushing further the boundaries of collective understanding – one of the most fundamental roles of any research university.

For the 2011–12 world university rankings, *THE* examined more than 6 million research publications, producing more than 50 million citations accumulated over a six-year period (2005–2009). In response to strong criticism of the 2004–2009 methodology, data were fully normalized to reflect variations in citation volume between different subject areas. As such, universities with strong research in fields with lower global citation rates were not penalized. In addition, citations per paper produced by each university were measured against world average citation levels in each field.

Of course, there remain concerns that scholars in the developing world may find it harder to publish their work in the leading journals indexed by Thomson Reuters, which for the most part are published in the English language and are predominantly edited and published in the United States and United Kingdom, where localized research networks exist. In addition to normalizing the citations data for subject variations, *THE* therefore sought to acknowledge excellence in research from institutions in developing nations, where institutions may have research networks of their own, but less opportunities, international exposure and therefore lower citation rates. Normalizing the data to reflect variations in citation volume between regions is an important innovation, and one that goes a long way towards addressing criticism that the rankings, based so heavily on bibliometrics, overly favour the English-speaking world.

Times Higher Education judges knowledge transfer in terms of just one indicator – research income earned from industry – but, in future years, this category will be enhanced with other indicators. One proposal being considered, at the time of going to press, is to take into account the number of research papers a university publishes in partnership with an industrial partner.

Internationalization is recognized through data on the proportion of international staff and students attracted to each institution – a sign of how global an institution is in its outlook and, perhaps, reputation. The ability of a university to attract the very best staff from across the world is key to global success. The market for academic and administrative jobs is international in scope, and this indicator suggests global competitiveness. Similarly, the ability to attract students in a competitive global marketplace is a sign of an institution's global competitiveness and its commitment to globalization.

For the first time for the 2011–12 rankings, *THE* also added an indicator that rewards a high proportion of internationally co-authored research papers.

Perhaps the most dramatic innovation for the world university rankings for 2010 and beyond is the set of five indicators designed to give proper credit to the role of teaching in universities, with a collective weighting of 30 per cent. However, it should be clarified that the indicators do not measure teaching 'quality'. There are currently no recognized, globally comparative data on teaching outputs, so fair global assessments of teaching outputs cannot be made. What the *Times Higher Education* rankings do is to look at the teaching 'environment' to give a sense of the kind of learning milieu in which students are likely to find themselves. *Times Higher Education* takes a subjective view, based on expert advice and consultation, that the indicators of the teaching environment they have chosen are indicative of a high quality environment.

The key indicator for this category draws on the results of an annual academic reputational survey carried out for the world university rankings by Thomson Reuters. To meet criticisms of the reputation survey carried out for the rankings between 2004 and 2009, Thomson Reuters brought in a third-party professional polling company to conduct the survey. The Academic Reputation Survey is distributed worldwide each spring. It is a worldwide, invitation-only poll of experienced scholars, statistically representative of global subject mix and geography. It examines the perceived prestige of institutions in both research and teaching.

Respondents are asked only to pass judgement based on direct, personal experience within their specific area of expertise. They are asked 'action-based' questions, such as 'Where would you send your best graduates for the most stimulating postgraduate learning environment?' to elicit more meaningful responses. In 2010, the survey covered 13,388 responses, attracting a good balance of responses around the regions and the disciplines. In

2011, despite the fact that no one who completed the survey in 2010 was invited to take part again, the survey attracted 17,500 responses, with an excellent balance of replies.

Some 19 per cent of the 2011 respondents were from the social sciences, with 20 per cent from engineering and technology, and the same proportion from physical sciences. Seventeen per cent came from the 'clinical, pre-clinical and health', while 16 per cent came from the life sciences. The smallest number of responses came from the arts and humanities – just 7 per cent – and while this is a little disappointing, it still provides a statistically sound basis for comparisons.

There was also an excellent spread of responses from around the world, facilitated by the fact that the survey was distributed in nine languages: Arabic, Brazilian, Chinese, English, French, German, Japanese, Portuguese and Spanish. The vast majority of respondents, some 36 per cent, came from North America, while 17 per cent came from Western Europe, 10 per cent from Eastern Asia, 8 per cent from Eastern Europe and 7 per cent from Oceania.

In addition to the reputation survey's results on teaching, four further indicators are used to provide information on a university's teaching and learning environment.

The rankings also measure staff-to-student ratios. This, as noted by *Times Higher Education's* editorial board, is admittedly a relatively crude proxy for teaching quality. But the indicator hints at the level of personal attention students may receive from faculty, and there was strong demand for it among stakeholders, so it remains in the rankings, but receives a relatively low weighting of just 4.5 per cent.

Times Higher Education also look at the ratio of PhD to bachelor's degrees awarded, to give a sense of how knowledge-intensive the environment is, as well as considering the number of doctorates awarded, scaled for size, to indicate how committed institutions are to nurturing the next generation of academics and providing strong supervision.

The last of the teaching indicators is a simple measure of institutional income scaled against academic staff numbers. This figure, adjusted for purchasing price parity so that all nations compete on a level playing field, gives a broad sense of the general infrastructure and facilities available. This is another major innovation in world rankings.

Sector response to these new tables has been excellent. However, there was notable criticism, coming mainly from heads of institutions that have taken the biggest hits from the new methodology, but many other comments have been positive.

The new methodology equally attracted praise. David Willetts, the UK government minister for universities and science, congratulated *Times Higher Education* for revising its rankings methodology. Steve Smith, vice-chancellor of the University of Exeter and the former president of Universities UK, which represents all UK vice-chancellors, said that the new methodology – and particularly its reduced dependence on subjective opinion and increased reliance on more objective measures – ‘bolstered confidence in the evaluation method’ (Smith, 2010: 43).

David Naylor, president of the University of Toronto, summed things up well. He recognized that *Times Higher Education*

consulted widely to pinpoint weaknesses in other ranking systems and in [our] previous approach... They brought in a new partner with recognized expertise in data gathering and analysis. And they also sought peer opinions on the education and learning environment at scores of universities. These are welcome developments. (Beck and Morrow, 2010: 1)

Future directions

Times Higher Education has registered notable progress in improving its methodology. Going forward, it will continue to engage its critics and take expert advice on further methodological modifications and innovations. A key innovation in rankings will be the pressure to provide more disaggregated data to the user. This both reflects the inherent limitations of any single composite ranking ‘score’ and recognizes the growing diversity of the users of rankings, with a diverse range of needs. A key step in this direction is *THE*’s free World University Rankings application for the iPhone and iPad, which represents a major step forward in the field. *Times Higher Education* has of course chosen its thirteen performance indicators and weightings carefully, and only after lengthy consultation. But with the iPhone application, the user can change weightings in five broad performance categories to suit their individual needs. Such transparency with the rankings data not only helps to provide more tailored information for the individual user, but also helps to educate the user: it exposes the influence that the ranking compilers’

decisions on the weighting of different performance indicators can have on any institution's overall ranking position.

More transparent, user-driven and multi-faceted approaches are, in my view, the future of global university rankings.

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Chapter 3

Issues of transparency and applicability in global university rankings

Ben Sowter

In 1911, one hundred years ago, the world was a dramatically different place, and higher education was no exception. Fewer than 10 per cent of the universities in existence today had been established. The population of the planet was less than a quarter of what it is today (United Nations, 2004) and a substantially smaller proportion of them were going through university. It had been only eight years since Orville and Wilbur Wright made the first controlled, sustained and heavier-than-air human flight, and only ten since the first Nobel Prizes were awarded (Nobel Foundation, n.d.).

Today, there are more than 20,000 higher education institutions (HEIs) in the world and more than 3.3 million students are studying outside their home country (OECD, 2010). In 2008 there were over 29 million flights (OAG Aviation, n.d.) and 813 individuals have now been awarded a Nobel Prize (Nobel Foundation, n.d.). With universities under increasing pressure to accept more students and increase research productivity on increasingly constricted budgets, student attraction at increasing fee levels is becoming an ever more important priority for universities worldwide.

Demand and utility of university rankings

There is greater demand than ever for comparative information on international universities. This demand comes from the institutions themselves to assess their competitive position, governments who have to ensure the quality of higher education and research and have to rationalize resource allocations, and students seeking to make the best choice of university.

Such information has not always been broadly available and remains unavailable in certain contexts, but there has been a drive for transparency among institutions over the last thirty years. University league tables have been one of the most influential factors in driving the transparency of information on higher education. League tables, regardless of how sophisticated their underlying measures, are compelling because of their allure of simplicity and facility to place institutions in a hierarchy where one is presented as superior to the next. Simple and conclusive statements can be inferred and used to attract headlines and contribute to marketing messages.

The tendency and even preference for the simplification of otherwise complex realities is not limited to higher education. The human mind seems

hard-wired to organize information into ordinal hierarchical lists (Eco, 2009). It is this way of thinking that has helped league tables, and more recently, international league tables to cement their position in the higher education landscape. The enormous interest in their published results and the ambitions of institutions to feature well therein has provided the incentive for universities to open up and feed data into both rankings and central data systems and agencies, paving the way for a range of more sophisticated tools to be considered that might never have been possible without the influence of league tables.

International league tables, emerging for the first time in 2003, have increased in number (see Table 1). Their rise in influence has mirrored this increase but, if anything, at an accelerated rate, attracting an unanticipated profile. Additionally, in certain contexts, international rankings have served as an effective wake-up call to institutions and governments in countries that may have previously had an inflated view of their own performance and global impact. Rankings have also led to a revolution in the availability of data on HEIs and intelligence to guide institutional and government strategies for higher education.

While it is clear that a range of stakeholders refer to international league tables, the primary target audience of the QS World University Rankings® is that of prospective international students in line with the mission statement of the company – ‘To enable motivated people around the world to achieve their potential by fostering international mobility, educational achievement and career development’ (QS Quacquarelli Symonds Ltd).

Table 1. Major global rankings by principal perceived or stated audience

Ranking	Compiler/publisher	First appeared	Principal audience
Academic Ranking of World Universities	Shanghai Ranking Consultancy	2003	(Chinese) University leadership
QS World University Rankings	QS Quacquarelli Symonds Ltd	2004	Prospective students
Ranking Web of World Universities	Webometrics	2004	University leadership and webmasters
Performance Ranking of Scientific Papers of World Universities	Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT)	2007	University leadership and research planners
<i>Times Higher Education</i> World University Rankings	<i>Times Higher Education</i> and Thomson Reuters	2010	Academics

The decisions facing prospective students have become immeasurably more complex in the last twenty years. The World Wide Web was first invented in 1989 and brought online in 1991, Google was founded in 1998, Facebook in 2004 and Twitter in 2006. Today, the volume of information which a prospective student has to sift through in order to make some final choices is mind-boggling and in some cases overwhelming. There is a growing need for simple-to-use but sophisticated tools to filter out the noise and shortlist options that merit further research. This is the need that the QS World University Rankings® and related tools and services aim to meet.

Limitations of current university rankings

Current annual aggregated university rankings do not always adequately meet client demands, nor do they always lend themselves to optimal use. Key limitations pertain to inadequacies in recognizing and addressing institutional diversity, lack of discipline-level matrices, narrow range and scope of measures, and limited allowing for user-driven results.

Institutional diversity

Universities differ greatly from one another. While the universities evaluated in the QS World University Rankings® are at the top end of the world's 20,000+ and as a result are pursuing high performance in teaching and research, their characteristics can vary greatly. The University of Buenos Aires has over 300,000 students, while ENS Paris has around 2,000. In this aspect alone it is clear that the two institutions are dramatically different in terms of funding and facilities, before their difference is studied in any more detail. In a global ranking context these differences are entirely overlooked.

The QS response to this issue has been to devise a devastatingly simple classification system based on three key metrics: size, as defined by full-time equivalent student enrolments; focus, as defined by the number of broad faculty areas in which they are active; and research intensity, as defined by the total volume of papers published factored against the size and focus of the institution.

Figure 1. Abbreviations, descriptions and thresholds for QS classifications

Size		Focus		Research intensity	
XL	Very large >=30 000 students	FC	Fully comprehensive <i>All 5 faculty areas + medical school</i>	VH	Very high <i>Threshold relative to size and focus</i>
L	Large >=12 000 students	CO	Comprehensive <i>All 5 faculty areas</i>	HI	High <i>Threshold relative to size and focus</i>
M	Medium >= 5 000 students	FO	Focused <i>> 2 faculty areas</i>	MD	Moderate <i>Threshold relative to size and focus</i>
S	Small < 5 000 students	SP	Specialist <i><= 2 faculty areas</i>	LO	Limited or none <i>Threshold relative to size and focus</i>

Source: Sowter (2011c).

Naturally the definition of ‘research intensity’ in a small institution focused principally on the Social Sciences has to be different than that for a large fully comprehensive institution, which makes the thresholds for the research intensity metric somewhat more complex than the others.

This concept will be extended in future and may consider aspects such as:

- institutional age,
- principal study mode,
- location/campus type (i.e. urban/suburban/rural),
- study levels offered/enrolment profile,
- institution status (i.e. public/private).

The key aspect about classifications is that no quality judgement should be inferred from their interpretation. It is not necessarily better to be large than small, comprehensive than specialist, or conduct less research if that is not the key focus of the institution.

Discipline level metrics

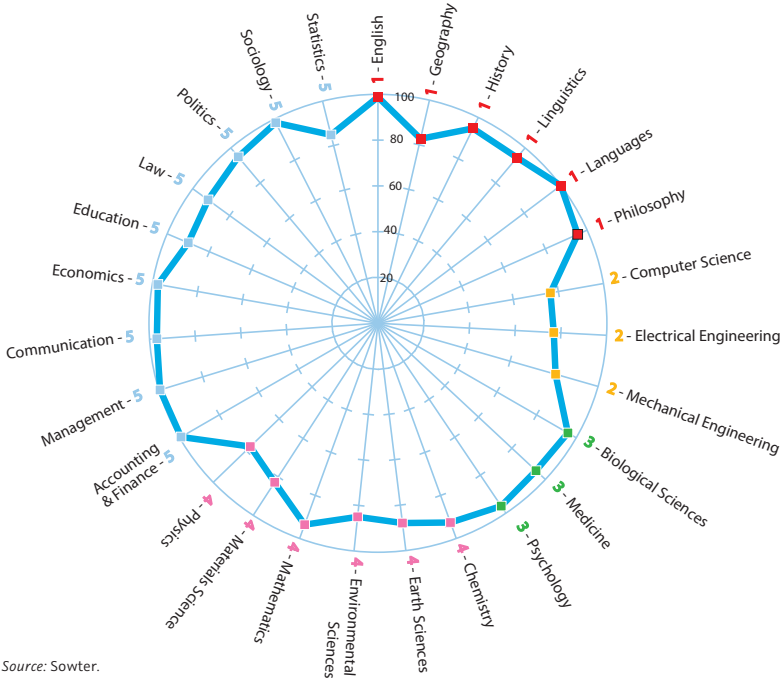
From personal experience and focus groups it is clear that a large proportion of prospective students address the question of institution choice already equipped with a strong idea of the discipline in which they want to study. Prior to 2011, global ranking compilers were not generating results at this level of granularity – reducing the potential utility of the data being compiled. It is clear that there is a need for better data at the discipline level. In response to this, QS is in the process of releasing tables at a narrower

discipline level (Sowter, 2011a). By the time the first cycle is complete in June 2011, over twenty-five individual subject disciplines will have been released. The full list at time of writing this chapter was:

- **Engineering and Technology (Released 3 April 2011)**
 - Computer Science
 - Engineering – Chemical
 - Engineering – Civil and Structural
 - Engineering – Electrical and Electronic
 - Engineering – Mechanical, Aeronautical and Manufacturing
 - Life Sciences and Medicine (Released 3 May 2011)
 - Biological Sciences
 - Medicine
 - Psychology
- **Natural Sciences (Released 19 May 2011)**
 - Chemistry
 - Earth and Marine Sciences
 - Environmental Sciences
 - Mathematics
 - Metallurgy and Materials
 - Physics and Astronomy
- **Arts and Humanities (Released 2 June 2011)**
 - English Language and Literature
 - Geography and Area Studies
 - History
 - Linguistics
 - Modern Languages
 - Philosophy
- **Social Sciences and Management (Released 22 June 2011)**
 - Accounting and Finance
 - Business and Management Studies
 - Communication, Cultural and Media Studies
 - Economics and Econometrics
 - Education
 - Law
 - Politics and International Studies
 - Sociology
 - Statistics and Operational Research

The above list should facilitate a much richer profiling tool by discipline strength for institutions as presented in the below chart.

Figure 2. Subject profile for selected anonymous institutions



Source: Sowter.

Institutions and potentially students will be able to quickly identify the key strengths and potential weaknesses of an institution by discipline. Prospective students might compare the profiles of different institutions to ensure that the disciplines in which they are interested are well regarded at their target institutions, while institutions themselves might utilize these profiles to identify discipline areas that require some attention, or those that might form the vanguard of their reputation. In the above example, two weaker areas and four key strengths have been identified.

Range of measures

Global rankings and league tables, while extremely popular and accessible have fundamental limitations that are not specific to particular methodologies used, but rather pervade all such exercises (HEFCE, 2008). In the main, these are imposed by the lack of globally available and comparable data for the key aspects of university performance that might most importantly be measured.

Every ranking exercise, therefore, has to make one or both of two compromises:

1. sacrifice the inclusion of certain subject institutions due to lack of data for intended measures,
2. sacrifice the inclusion of intended measures due to lack of data for certain subject institutions.

Additionally, the practicality of certain measures is limited by the transnational scope of the exercise, ruling out indicators that may work effectively in one country, but simply do not when comparing across borders. Perhaps, the best example is financial measures. Differences in fees and funding between institutions and from year to year are influenced by a range of factors beyond the institutions' control, including but not limited to:

- international exchange rates,
- relative economic strength,
- government funding policy,
- cultural and structural tradition.

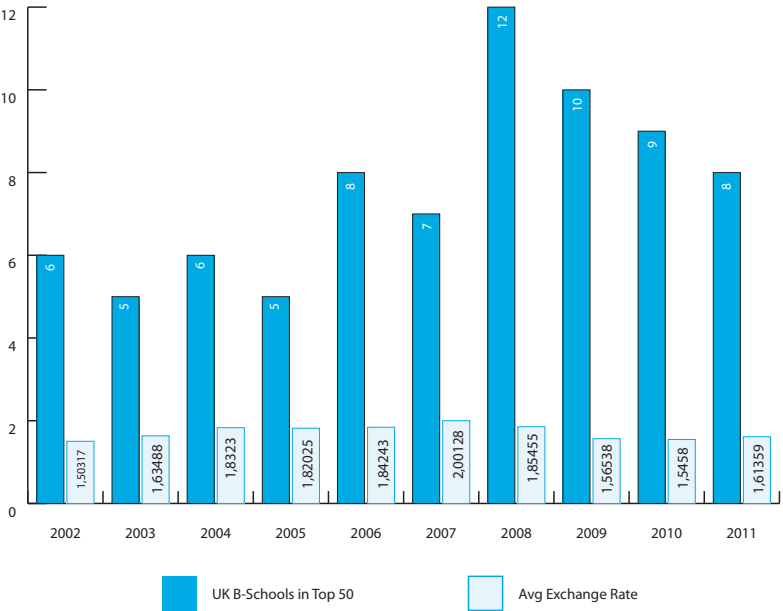
In order to overcome the effects of these influences, any ordinal evaluation would have to apply a detailed and complex layer of statistical engineering to adjust for exchange rates, purchasing power and other less easy to identify factors – such as the level of social inclination to donate to one's alma mater. The alternative is to ignore these factors altogether.

Indeed one of the longest established rankings of HEIs is the *Financial Times* Global MBA Ranking. As Figure 3 clearly highlights, there is a strong correlation between performance in their evaluation and the strength of the currency where the business school is located. In the ten-year period considered, the number of British business schools in the top 50 fluctuated between five and twelve in the league table, and there appears to be a marked relationship with the strength of the pound.

QS has always avoided considering financial metrics in its overall ordinal rankings for these reasons, and it will be interesting to see what effects are seen in the second edition of *Times Higher Education's* ranking given the inclusion of four distinct financial measures. Nonetheless, it is clear that financial measures are strong indicators for certain aspects of university strength and under different circumstances, perhaps, ought to be looked at.

Binary measures are also very difficult to include in a rankings context, as are aspects that have a particularly low variance for the institution sample featured in our work. For example, at a national level, graduate employment rates may seem a very pertinent measure, but given that the majority of global rankings are dealing with the top 5 per cent or less of global institutions, all of the subjects do very well, providing very little discernment between the participating institutions and resulting in a surprisingly volatile measure that, once more, potentially owes more to the economic environment than the effectiveness of the institution.

Figure 3. Correlation between exchange rate and UK business school performance in FT rankings



*Average Exchange Rates taken from the preceding year since rankings measures tend to be retrospective

Source: Sowter (2011b).

QS is in complete agreement that current aggregate global rankings do not present a sufficiently comprehensive picture of the performance of universities. Going further, QS believes that aggregate global rankings will never be able to provide a complete picture regardless of how sophisticated data collection mechanisms may become. Indeed, in almost all cases, such rankings were intended for use as a guide to decision-making rather than an alternative.

Many of these other important measures are best embraced in a context which,

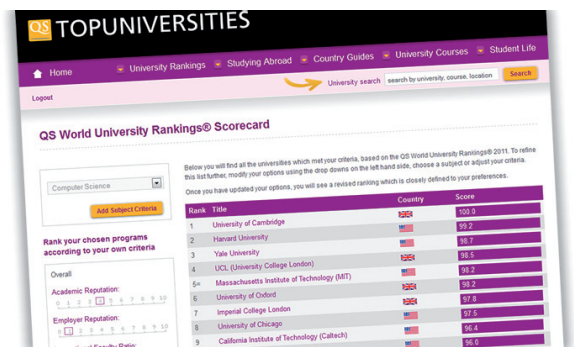
- does not depend on every institution gathering and submitting data, but instead only on those that wish to be evaluated;
- does not evaluate performance relative to the moving goalposts of others' parallel progress, but against pre-set and well-understood standards;
- does not automatically favour large, comprehensive institutions, but identifies the best in each niche category; and
- presents a range of grouped or banded outcomes rather than an ordinal list.

In response to this need, QS and its Academic Advisory Board have devised QS Stars. This is a rating system akin to a 'Michelin Guide' for universities. The first audits, using a range of well over twenty indicators, are complete and awards have been made.

User-driven results

University selection decisions are deeply personal and potentially crucial. Rankings results, as published, are just one (perhaps expert) interpretation of the data – a little like a film critic stating that one film is better than another. The critic may know far more about film and may be able to justify his viewpoint using a near scientific formulae, but his ultimate proclamation may bear no resemblance to the viewpoint of any given audience member.

Figure 4. Concept screenshot from a QS World University Rankings® Scorecard



Source: Topuniversities (www.topuniversities.com).

Such is the case with university rankings. The expert panel assigning the criteria and weightings may even effectively navigate the average viewpoint

of the audience, but this does little to change the fact that any given reader or user may consider employability rather more important than research in considering their options. The Centre for Higher Education Development (CHE) in Germany has pioneered this approach, providing a deeply sophisticated tool for stakeholders to manipulate data and generate a rich user-driven picture of the universities they might be considering. In 2011, data from the QS World University Rankings® was, for the first time, made available to such a system where users can select their own criteria and apply their own weights in pursuit of generating a personalized, user-driven ranking of their own.

The path to more transparency

Rankings and league tables have served as a very real catalyst for the transparency agenda in higher education. QS, and I suspect any other organization involved in similar data gathering operations, has found institutions both increasingly forthcoming and increasingly able to supply solid responses to questions that, to some, would have once seemed unfathomable. Doing the basic research for the basic metrics has certainly become easier.

Since 2003, when the Shanghai rankings first emerged, the level of quantitative information available on an average university's own website has seen a remarkable improvement. The emergence of central and government-sponsored data collection exercises has accelerated. There has also been greater acceptance among university leadership that measurement and evaluation are early steps on a route to performance improvement against their own individual missions and goals.

It seems a natural step that rankings and league tables themselves be subject to similar scrutiny and be expected to provide open access to what is 'under the hood'. Transparency is not only about access to the data; it involves detailed data definitions, complete access to the methodology and any statistical techniques, the data itself, the ability to search, filter and manipulate the results, and the necessary health warnings highlighting appropriate use and misuse along with potential confidence analysis. Arguably there is no provider of global league tables currently providing the complete collection of information and tools required to represent 'complete' transparency. In the case of the QS, this is not down to a philosophical or commercial

objective against transparency, but more to do with technical and resourcing constraints in preparing all the necessary material and keeping it all fully up to date. At present QS publishes:

- final indicator scores for all indicators,
- complete detailed definitions of all requested data,
- demographic breakdowns of survey responses,
- extensive methodological documentation,
- means and standard deviations for each indicator (aiding reproducibility),
- specific weightings of indicators,
- statistical profiles (raw data) of each institution (to be reinstated on the website soon).

QS also publishes links to a wide variety of other global, international and domestic evaluations of universities, acknowledging that for different purposes and contexts other results may be more relevant and useful. It has also volunteered to be among the first providers to be subjected to the newly devised IREG audit process (IREG, 2011). A question that frequently emerges surrounding this area relates to the nature of organizations that are or should be conducting this kind of work and whether or not this has a fundamental influence on the transparency of results. Figure 5 gives an overview of the organization types of the major international rankings compilers. There are a mixture of private commercial organizations, government organizations and institutions themselves.

Figure 5. Organization types of major international rankings compilers

Ranking	Compiler/publisher	Organization type
Academic Ranking of World Universities	Shanghai Ranking Consultancy	Commercial
QS World University Rankings	QS Quacquarelli Symonds Ltd	Commercial
Professional Ranking of Global Higher Education Institutions	Mines ParisTech	Institution
Ranking Web of World Universities	Webometrics	State research institute
Performance Ranking of Scientific Papers of World Universities	Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT)	Government
<i>Times Higher Education</i> World University Rankings	Times Higher Education and Thomson Reuters	Commercial/Media
High Impact Universities	(Affiliated with) University of Western Australia	Institution
U-Multirank	CHERPA Alliance/European Commission	Government

Clearly there are a number of commercial and media organizations involved in pursuit of this activity, including QS. These organizations have driven innovation in this area potentially more rapidly than may have been the case through a more academic approach. Additionally, they are arguably more independent as institutions themselves and government organizations are likely to have, or to be perceived to have, a clear agenda to further the profile of their own institutions. QS is a business entirely grounded in higher education, and feels the pressure to be transparent and responsible – much more so than an institution, government agency or media organization.

Conclusion

In her closing remarks at the UNESCO Global Forum on Rankings and Accountability in Higher Education, Stamenka Uvalic-Trumbic, the then Chief of the UNESCO Section for Higher Education, laid out projections estimating that global higher education will need to find space for almost 100 million additional students by 2025. This is equivalent to opening a large comprehensive university every two weeks. In reality, the majority of that demand will be met by increased capacity at existing universities and advancements in online and distance learning.

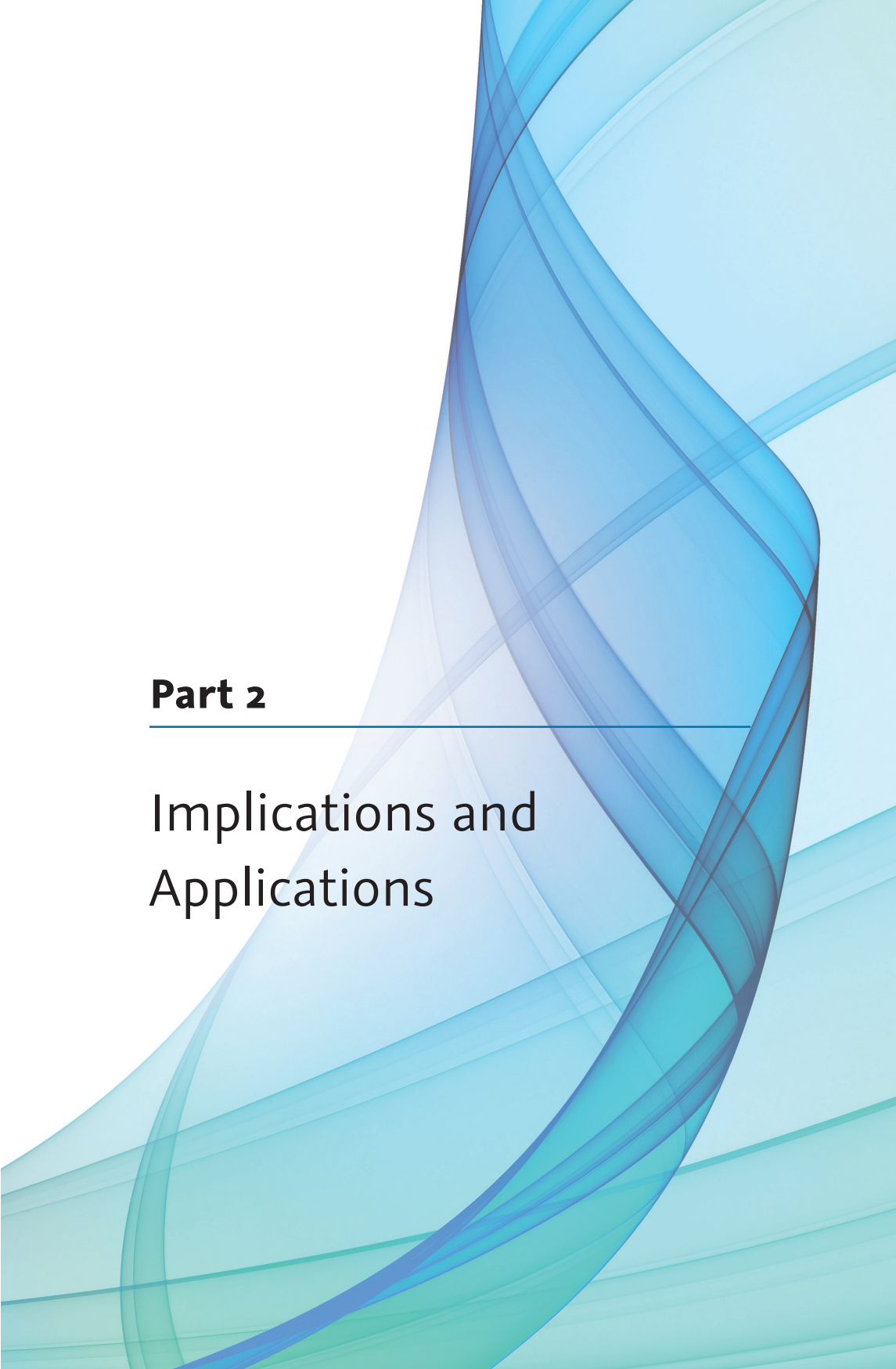
Either way, there are some dramatically clear implications. For instance, government funding can only go so far so in absorbing these additional students. More and more universities will escalate their fees. Some countries where fees have not previously been in evidence are beginning to introduce them. This is a harsh economic reality. Introducing substantial financial liabilities to the decision-making process will inevitably influence the behaviour of prospective students. They will begin to look more like customers, demanding a certain level of service, expecting a solid return on investment and reacting to good deals. There will be increasing pressure for them to make the best possible decision. They will require information that is easy to access and understand in order to at least sift the options to a manageable level. Global league tables are pioneering this on an international scale. A range of new tools in development by QS and other providers will serve to further augment the picture currently being painted by their results.

While many criticisms of league tables may be valid, there can be little question that they have been a key driver for transparency and accountability among institutions, and have paved the way for a rich and growing

culture of performance evaluation in higher education. They also provide meaningful and useful input into student decision-making alongside other sources of information. With generations Y and Z increasingly demanding fast and convenient access to information it seems inevitable that these mixed interpretations of university evaluation are likely to converge over the next few years.

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Part 2

Implications and Applications

Chapter 4

World-class universities
or world-class systems?
Rankings and higher
education policy choices

Ellen Hazelkorn

In today's world, it has become all too familiar for policy-makers and higher education leaders to identify and define their ambitions and strategies in terms of a favourable global ranking for their universities/university. But is it always a good thing for a university to rise up the rankings and break into the top 100? How much do we really know and understand about rankings and what they measure? Do rankings raise standards by encouraging competition or do they undermine the broader mission of universities to provide education? Can rankings measure the quality of higher education? Should students use rankings to help them choose where to study? Should rankings be used to help decide education policies and the allocation of scarce resources? Are rankings an appropriate guide for employers to use when recruiting new employees? Should higher education policies aim to develop world-class universities or to make the system world-class?

This chapter discusses the rising attention accorded to global rankings and their implications for higher education. It is divided into five sections: the first explores the growing importance accorded to rankings; the second discusses what rankings measure; the third asks whether rankings measure what counts; and the fourth reflects on how the use and abuse of rankings is influencing policy choices. Finally, the fifth section addresses a key policy question: should governments focus on building the capacity of a few world-class universities or on the capacity of the higher education system as a whole, in other words, building a world-class higher education system?

Growing attention to rankings

It is a common saying, but nonetheless true, that higher education is changing rapidly. There are probably four main drivers:

- First is the rapid creation of new knowledge creation and its application, which has become a foundation for individual and social prosperity, be it cultural or economic. People who complete a high-school education tend to enjoy better health and quality of life than those who finish at the minimum leaving age. Those completing a university degree can look forward to a significantly greater gross earnings premium over their lifetime compared with someone who only completes secondary school. Graduates are also more likely to be engaged with their community and participate in civil society. Successful societies are those with the capacity to ensure its citizens have the knowledge and skills to contribute

to society throughout their lives, and in which new knowledge can be developed and exploited for competitive and public advantage. Because higher education institutions (HEIs) are the principal base for human capital development, and new knowledge creation and dissemination, investment and performance matters. For all these reasons, higher education is now at the centre of policy-making.

- Second, the capacity to participate in ‘world science’ depends on the ability of countries to develop, attract and retain talent. But many countries face demographic pressures. While the world population is increasing, the population of more developed regions is dependent on net migration with a converse impact on the developing world. Despite global population growth, the availability of skilled labour is actually declining. In 2005, young people represented 13.7 per cent of the population in developed countries but their share is expected to fall to 10.5 per cent by 2050 (Bremner et al., 2009, 2: 6). Together, these demographic dynamics presents a major challenge for all national strategies based on growing knowledge-intensive industries. In response, governments around the world are introducing policies to attract the most talented migrants and internationally mobile students, especially postgraduate students in science and technology.
- Third, because higher education is considered an essential component of the productive economy, how higher education is governed and managed has become a major policy issue. The quality of individual higher education institutions (HEI) and the system as a whole, (e.g. teaching and learning excellence, research and knowledge creation, commercialization and knowledge transfer, graduate employability and academic productivity), provide a good indication of a country’s ability to compete successfully in the global economy. Accordingly, the trend for greater transparency and accountability has been supplemented by an increasing need to demonstrate value for money and (public) investor confidence.
- Fourth, students (and their parents) have become very savvy consumers, especially as evidence continues to show that graduate outcomes and lifestyle are strongly correlated with education qualifications and career opportunities. Students are now much more focused on employability as opposed to employment. They assess their choice of an institution and education programmes as an opportunity-cost – balancing the cost of tuition fee and/or cost of living and the career and salary opportunities. As the traditional student market declines, competition for high achieving students is rising. The balance of consumer power is shifting in favour of discerning talented students.

In this environment, the arrival of higher education rankings is not surprising. They may be perceived as an independent assessment of individual institutions, meeting wider policy goals for greater transparency and accountability, and assessing value for money and return on investment. Rankings are seen to provide a clue, for a wide range of stakeholders, about the quality of the educational product. For students, they indicate the potential monetary or private benefits that university attainment might provide vis-à-vis future occupation and salary premium. For employers, they signal what can be expected from the graduates of a particular HEI. For government and policy-makers they can indicate the level of quality and international standards, and their impact on national economic capacity and capability. For HEIs they provide a means to benchmark their own performance. For the public, rankings provide valuable information about the performance and productivity of HEIs in a simple and easily understood way.

National rankings have existed in many countries, most notably the United States, for decades. Since 2003, with the publication of the Shanghai Jiao Tong Academic Ranking of World Universities (ARWU), global rankings have become very popular. Knowledge about and use of rankings has continued apace in the aftermath of the 2008 Global Financial Crisis (GFC), reflecting the realization that in a global knowledge economy, national pre-eminence is no longer enough. Today, rankings exist in every part of the world. There are eleven global rankings – albeit some are more popular than others (see Box 1). Over sixty countries have introduced national rankings especially in emerging economies (Hazelkorn, 2012b), and there are a number of regional, specialist and professional rankings. While undergraduate, domestic students and their parents were the initial target audience for rankings, today, they are used by a myriad of stakeholders (e.g. governments and policy-makers; employers and industrial partners; sponsors, philanthropists and private investors; academic partners and academic organizations; the media and public opinion). Postgraduate students, especially those seeking to pursue a qualification in another country, are the most common target audience and user.

Box 1. Main global rankings

- Academic Ranking of World Universities (ARWU) (Shanghai Jiao Tong University), 2003
- Webometrics (Spanish National Research Council), 2003
- World University Ranking (*Times Higher Education*/Quacquarelli Symonds), 2004–2009
- Performance Ranking of Scientific Papers for Research Universities (HHEACT), 2007
- Leiden Ranking (Centre for Science and Technology Studies, University of Leiden), 2008
- World's Best Colleges and Universities (*US News and World Report*), 2008
- SCImago Institutional Rankings, 2009
- Global University Rankings, RatER (Rating of Educational Resources, Russia), 2009
- Top University Rankings (Quacquarelli Symonds), 2010
- World University Ranking (*Times Higher Education*/Thomson Reuters [THE-TR]), 2010
- U-Multirank (European Commission) 2011

Note: Date indicates date of origin.

What do rankings measure?

Rankings compare different HEIs using a range of indicators to measure different aspects of higher education (see Part I of this book). The choice of indicators is decided by the promoters of each system, with each indicator acting as a proxy for the real object. This is because there is often no direct measurement; for example, there is no agreed way to measure the quality of teaching and learning. Each indicator is considered independently, while in reality there is an interactive element to them or at least collinearity; for example, older well-endowed private universities are more likely to have better faculty/student ratios and per student expenditure compared with newer public institutions or institutions in developing countries. Each indicator is also assigned a weight or percentage of the total score, with research usually assigned the highest weight. A final score is aggregated to a single digit and ranked sequentially. Rankings usually concentrate on whole institutions, although there is an increasing focus on sub-institutional rankings at the field of science level (e.g. natural science, mathematics, engineering, computer science, social sciences) or by discipline or profession (e.g. business, law, medicine, graduate schools, etc.).

Regardless of ranking system, there has been considerable criticism of the methodology, the choice of indicators and weightings, the quality of the data and its reliability as an international or institutional comparator of performance, and whether it is possible to measure and compare complex and diverse HEIs possessing different missions and contexts (see Dill and Soo, 2005; Rauhvargers, 2011; Sadlak and Liu, 2007a; Saisana and D'Hombres 2008; Usher and Medow, 2009; Usher and Savino, 2006; Usher and Savino, 2007). Over the years, and in response to commentary and analysis, various changes to the methodology have been made, but the overarching criticisms remain.

Rankings use information from four main sources: independent third parties, such as government databases; bibliometric and citation data gathered through proprietary, electronic or web-based sources; institutional data; and student, peer, employer or other stakeholder surveys. The absence of internationally meaningful and available data continues to present a considerable problem for any reliable comparisons. Similarly, the lack of consistency in data definition, sets, collection and reporting makes it difficult to make simple and easy comparisons across jurisdictions and between different rankings. National rankings are usually able to capture data across a wide range of dimensions, while global rankings are inevitably more narrowly proscribed. Peer or stakeholder surveys were

issued in only a few languages until recently; however, THE-TR have now expanded to nine languages. Webometrics measures the size and quality of university internet presence, but this can disadvantage developing countries with poor internet connectivity.

The data sources are also susceptible to bias, self-perpetuating views of quality and allegations of ‘gaming’ – or manipulating the data in order to influence the outcome. To get around these problems, measurements usually consist of proxies. For example, research data is used to measure academic quality; student entry levels or student selectivity gauge institutional selectivity; faculty/student ratio measure educational quality; and an institution’s budget measures the quality of the infrastructure (e.g. the buildings and laboratories). In addition, different rankings assign different weightings to the indicators, and thus a HEI’s position can change considerably depending upon the weight ascribed to the particular criteria. Aggregating the scores into a final rank ignores the fact that some institutions might score higher in some domain than others, or vice versa. This can lead to inconsistency across different rankings but also highlights the arbitrariness of the weightings.

Rankings focus disproportionately on research. This is due to the fact that research data are widely available, but more importantly it reflects a view that research is the most important indicator of higher education quality. Research is assessed on the basis of bibliometric and citation data usually provided by Thomson Reuter’s Web of Science or Elsevier’s Scopus. However, these data are most accurate only for bio- and medical sciences research; they are less reliable for the arts, humanities and social science disciplines. By focusing on research output as the primary measure of higher education quality and productivity, rankings ignore the full breadth of higher education activity, including: teaching and learning, the quality of the student experience or the ‘added value’ a HEI contributes to a student’s learning over and beyond the student’s entry level. No attention is given to the social and economic impact of knowledge and technology transfer, or the contribution of regional or civic engagement or ‘third mission’ activities to communities and student learning outcomes – despite these aspects being a major policy objective for many governments and the mission focus for many HEIs. Nonetheless, research accounts for 100 per cent of the marks of the ARWU compared with 62.5 per cent for THE-TR and 20 per cent for QS. ARWU also collects information on publications in *Nature* or *Science*, albeit it is not clear why these two journals have been singled out for such attention. Table 1 below provides a simple comparison of what rankings measure and what they do not measure.

Table 1. What rankings measure

Rankings measure	Rankings do not measure
• Bio- and medical science research • Publication in <i>Nature and Science</i> • Student and faculty characteristics (e.g. productivity, entry criteria, faculty/student ratio) • Internationalization • Reputation – among peers, employers, students.	• Teaching and learning, including ‘added value’, the impact of research on teaching • Arts, Humanities and Social Science Research • Technology/knowledge transfer or impact and benefit of research • Regional or civic engagement • Student experience.

Despite the huge diversity in national context and institutional missions, existing rankings compare complex HEIs using a common set of indicators. Nonetheless, the results of major global rankings are often similar. According to Usher and Medow (2009: 13), this commonality arises from the fact that rankings measure socio-economic advantage and the benefits of age, size and money, which help large institutions and countries. They attach greatest importance to HEIs that are roughly 200 years old with approximately 25,000 students and 2,500 faculty, and an annual budget of around €2 billion plus considerable endowment earnings (Sadlak and Liu, 2007b; Usher, 2006). These HEIs operate highly selective entry criteria for students and faculty. Accordingly, they have been able to amass significant competitive advantage. Of the world’s more than 16,000 HEIs, research performance is concentrated in the top 500 and is virtually undetectable (on that index) beyond 2,000. Because age and size matters, there is a super-league of approximately twenty-five universities, usually with medical schools and in English-language countries, which tend to dominate the top strata of all rankings (Sheil, 2009).

There are over 16,000 HEIs worldwide, according to the International Association of Universities (IAU). However, rankings generally publish data for only a fraction of this number with some exceptions (e.g. QS publishes data for 700, and Webometrics for over 2,000 HEIs). Nonetheless, statements by politicians and policy-makers, university leaders, other HE stakeholders and the media regularly focus on the achievements of the top 100. This represents less than 1 per cent of the world’s higher education institutions.

Do rankings measure what counts?

Considerable attention has been paid to commenting on what rankings measure and identifying methodological flaws. However, the key question is: do rankings measure what counts or, to paraphrase Einstein, do they

simply count what is easily measured? Because rankings, like other performance indicators, can incentivize opinions, decisions and behaviour, it is important to understand more fully what is measured and the possible perverse incentives or unintended consequences that can be encouraged by their usage (see Martin and Sauvageot, 2011). The following discussion briefly examines six different dimensions (see Table 2; fuller discussion in Hazelkorn, 2011a, chap. 2).

Table 2. Summary of advantages and disadvantages of commonly used indicators

Indicator	Advantage	Disadvantage
Student entry levels	Strong correlation between academic tests and future achievement, especially for literacy and mathematics	No statistically significant relationship between 'learning and cognitive growth' and admissions selectivity
Faculty/student ratio	- Assesses 'commitment to teaching' - Smaller ratio creates a better learning environment	Quality depends on interaction among many factors (e.g. faculty, pedagogy, laboratories and other facilities)
Resources	Correlation between budget and quality of learning environment, programme choice and services	No direct correlation between budget and usage, or between value, cost and efficiency
Student satisfaction	Used to understand quality of learning environment	Useful to help improve performance, but difficult to use for comparisons or ranking
Education outputs	- Completion, graduation and employability measures educational success and failure - Links education with careers, salaries and lifestyle	- Lower socio-economic and ethnically disadvantaged groups or mature students can have different study patterns - Employability and salary are linked to market forces
Research	Measures research and scholarly activity, impact and faculty productivity	Bibliometric and citation practices are inaccurate measures of research activity
Reputation	Value and regard as measured by academic peers or key stakeholders	Subject to rater bias, halo effect and 'gaming'

Source: adapted from Hazelkorn (2011a: 60).

Measuring student entry

Many national rankings, such as the *US News and World Report* Best College rankings (*USN&WR*), measure student entry levels on the basis that high entry scores are a proxy for academic quality. This is based on the view that student grades can be used to predict future achievement, and hence, more high-achieving students equate with higher quality. But as Hawkins (2008) says, ‘many colleges recruit great students and then graduate great students [but is] that because of the institution, or the students?’ International evidence repeatedly shows that student-learning outcomes

are attributable to many factors that influence prior learning. Kuh and Pascarella (2004: 56) warn that failure to control for student pre-college characteristics can lead to the conclusion that differences in reported student experiences are institutional effects when, in fact, they may simply be the result of differences in the characteristics of the students enrolled at the different institutions. The US National Study of Student Learning (NSSL) and the National Survey of Student Engagement (NSSE) 'found no statistically significant relationship between effective teaching practices and admissions selectivity' (Carey, 2006a) To get a more accurate picture of the quality of teaching and learning, it would be better to assess 'value added' – in other words, what an institution has contributed to a student's knowledge and skills rather than measuring students at entry. Ultimately, entry scores simply reflect socio-economic advantage.

Measuring faculty/student ratio

Because measuring the quality of teaching and learning is highly complex, rankings such as the THE-QS, QS and U-Multirank use faculty/student ratio as a proxy for teaching quality. A smaller ratio is viewed as equivalent to better teaching on the basis that small classes create the optimum learning environment. This is an issue of discussion at primary and secondary level, but even here the OECD (2010: 72) has warned that: 'While smaller classes are often perceived as enabling a higher quality of education, evidence on the impact of class size on student performance is mixed.' Education quality is influenced by the whole learning environment; for example, the balance of quality across academics, seminars, laboratories, tutorials, and so on, as well as different pedagogical formats and learning resources. If a university

hired full-time lecturers, at lower salaries, to do more of its undergraduate teaching and devoted the resources that it saved from doing so to increasing the average salaries of its tenure-track faculty would... its students be disadvantaged by having a smaller share of their classes taught by tenure and tenure-track faculty? (Ehrenberg, 2005: 32)

Faculty/staff ratio also has very different meanings for public and private institutions and systems, and may say more about the funding or efficiency level. Class size in and of itself can be a hollow indicator especially when used to measure the learning environment for high-achieving students. Ultimately, the simplicity of the indicator does not tell us very much about what affect the faculty/student ratio has on actual teaching quality or the student experience (Brittingham, 2011).

Measuring resources

The level of expenditure or resources is often used as a proxy for the quality of the learning environment. This is captured, inter alia, by the total amount of the HEI budget or by the size of the library collection. *USN&WR* says that ‘generous per-student spending indicates that a college can offer a wide variety of programmes and services’ (*US News Staff*, 2010); this is sometimes interpreted as expenditure per student. For example, Aghion et al. (2007) argue that there is a strong positive correlation between the university budget per student and its research performance as demonstrated in the ARWU ranking. However, many HEIs are competing on the basis of substantial resources spent on dormitories, sports and leisure facilities, and so on; it is not clear what impact these developments – worthy as they are – have on the actual quality of the educational or learning experience. This approach can also penalize ‘institutions that attempt to hold down their expenditures’ (Ehrenberg, 2005: 33) and it provides ‘little or no information about how often and how beneficially students use these resources’ (Webster, 1986: 152). For example, because the costs associated with building a new library for a developing country or new HEI can be very significant. Many institutions have switched to electronic access or sharing resources with neighbouring institutions. There is a danger that looking simply at the budget ignores the question of value vs. cost vs. efficiency (Badescu, 2010), and that the indicator is essentially a measure of wealth (Carey, 2006b). Indeed, while many policy observers look to the US, ‘if value for money is the most important consideration, especially in an age of austerity, the American model might well be the last one... [to] be emulating’ (Hotson, 2011).

Measuring education outputs

In recent years, performance and quality assessment have shifted from focusing on input factors to looking at outputs and outcomes. Rather than simply comparing the number of students in a particular HEI or the number of students entering the first year of a programme, emphasis has turned increasingly to looking at successful completion or graduation rates, as determined by the appropriate timeframe (e.g. a BA degree is usually completed in three/four years, a Master in one/two years and a PhD in three/four years). Employability is also a focus of increasing attention. There is little doubt that these are critical issues, as it places a responsibility on HEIs to ensure that students successfully complete their programme of study within a reasonable timeframe and can find sustainable employment afterwards.

But, as mentioned above, educational performance is influenced by myriad factors. This method may be disadvantageous to lower socio-economic and ethnically disadvantaged groups or mature students whose life or family circumstances disturb normal study patterns. These students often take longer to complete, as they may need to work to supplement their income or look after family or domestic matters. While HEIs that seek to serve this particular student cohort can become dis-incentivized by such indicators (Jones, 2009), institutions which serve a large number of wealthy students can win the numbers game when graduation and retention rates are reported as averages among the entire student body. Employability can be a reflection of wider economic factors, and not necessarily a measure of educational quality. The US National Governors Association Centre for Best Practice has cautioned against relying upon methodologies that can inadvertently 'exclude far too many students and track too few student milestones':

The most commonly used measure for public higher education funding formulas is total student enrolment. This measure creates no incentive to see students through to completion... Alternatively, strict graduation rate formulas can penalize schools that serve disadvantaged students because these schools will inevitably have lower graduation rates. Moreover, a singular emphasis on graduation can discourage open-enrolment policies, because skimming top students will improve institutional performance despite excluding students who may benefit most from postsecondary education. Graduation rate funding formulas may also pressure schools to lower their graduation standards if they are desperate for funds and are not meeting graduation targets (Limm, 2009).

Measuring research

Counting academic publications and citations is the most common method to assess academic work; the former measures productivity and the latter measures quality. Rankings rely heavily upon Thomson Reuters and Scopus, which collect publication and citation data for approximately 9,000 journal articles in Web of Science and 18,000 in Scopus, respectively. The main beneficiaries of this practice are the bio- and medical sciences because these disciplines publish frequently with multiple authors. In contrast, the social sciences and humanities usually have single authors and publish in a wide range of formats (e.g. monographs, policy reports, translations and so on), whereas the arts produce major art works, compositions and

media productions, and engineering produces conference proceedings and prototypes. These latter outputs, in addition to electronic formats or open source publications, are ignored by traditional bibliometric methods.

Bibliometric practices also disproportionately reward research that is published in English-language, international, peer-reviewed journals. Although English is the lingua franca of business and the academy, it can be an inhibitor. English-language articles and countries, which publish the largest number of English-language journals, tend to benefit the most. It also disadvantages the social sciences and humanities, which often consider issues of national relevance and publish in the national language but can equally affect the sciences (e.g. environmental or agricultural science, for similar reasons).

Disparity across disciplines and world regions is further reflected in citation practices. Authors are most likely to reference other authors whom they know or who are from their own country. Given an intrinsic tendency to reference national colleagues or English-language publications, the reputational or halo factor means that certain authors are more likely to be quoted than others. Altbach (2006) claims that non-English language research is published and cited less often because researchers from US universities tend to cite colleagues they know. It is also easier, says Altbach (2012: 29; also Jones, 2009), 'for native English speakers to get access to the top journals and publishers and to join the informal networks that establish the pecking order in most scientific disciplines'. This may occur because of the significance of their work or because of informal networks. This can affect reputational surveys that have become the chosen methodology of both the new QS and THE-TR rankings, which assign 50 per cent and 33 per cent, respectively (THE-TR also publishes a reputation ranking). Because detailed familiarity with a country or institution may in reality be imperfect, peer reviewers 'tend to rank high those departments of the same type, and with the same emphases, as their own universities' (Webster 1986: 44) or those with whom they are most familiar (Hazelkorn, 2011a: 74–77). The pool of peers has tended to be disproportionately weighted in favour of Anglophone countries and while changes have been made to the peer selection process, participation levels remains limited (Usher, 2012).

There are other more consequential problems that arise from this method. By focusing only on peer-reviewed articles in particular journals, it assumes that journal quality is equivalent to article quality. Articles may be quoted because of errors, not necessarily because of a breakthrough. This has led to the controversial practice of ranking academic journals (Hazelkorn, 2011b).

Peer review, which is the cornerstone of academic practice, can also be a conservative influence; new research fields, interdisciplinary research or ideas that challenge orthodoxy can find it difficult to get published or be published in high-impact journals.

Furthermore, using citations to measure ‘impact’ suggests that its relevance and benefit is simply a phenomenon of the academy, thereby ignoring the wider social and economic value and benefit of publicly funded research and innovation. In so doing, the full spectrum from knowledge creation to technology and knowledge transfer and exchange – across all disciplines – is ignored. Furthermore, depending on the research project or the discipline, research findings and analysis may be published in a wide variety of formats or as prototypes, and its impact and benefit felt far beyond the academy. Table 3 shows what is measured above the red line by traditional bibliometric and citations practice, and what is ignored below the red line.

Table 3. Indicative list of research output and impact

Journal articles		Peer Esteem
• Book chapters • Computer software and datavases • conference publications • Editing of major works • Legal cases, maps • Major works in production or exhibition and/or award-winning design • Paents of plant breeding rights • Policy documents or brief • Research or tehcnical reports • Technical drawings, designs or working models • Translations • Visual reconrdings		• Impact on Teaching • Improved Productivity, REduced Costs • Improvement on environment and lifestyle • Improving people's ealth and quality of life • Increased employment • Informed public debate • New approaches to social issues • New curriculum • Patents, Licences • Policy change • Social innovation • Stakeholder esteem • Stimulating creativity

Measuring reputation

To assess how prominent stakeholders view individual HEIs, rankings often use reputational surveys of academic peers, students or industry stakeholders. They usually ask respondents to identify the best universities either from memory or from a pre-selected list. This method has led to the opinion that reputational surveys are prone to being subjective, self-referential and self-perpetuating (Rauhvargers, 2011: 65). They benefit older institutions in developed countries and global cities with which there is an easy

identification. Peer judgements may 'say little or nothing about the quality of instruction, the degree of civility or humaneness, the degree to which scholarly excitement is nurtured by student-faculty interaction, and so on' (Lawrence and Green, 1980: 13). Over-estimation of a university 'may be related to good performance in the past, whereas underestimation may be a problem for new institutions without long traditions' (Becher and Trowler, 2001). Van Raan (2007: 95) similarly acknowledges that

Institutions with established reputations are strong in maintaining their position, for they simply have the best possibilities to attract the best people, and this mechanism provides these renowned institutions with a cumulative advantage to further reinforce their research performance.

The real question is: can university presidents or any other stakeholders know sufficiently about a wide range of other institutions, around the world, in order to score them fairly? In other words, rankings are a self-replicating mechanism that reinforces the position of already known universities, rather than those that are excellent.

In summary, there is no such thing as an objective ranking. The choice of indicators and weightings assigned to them reflect the value judgements or priorities of the different ranking organizations. More importantly, the measurements are rarely direct but consist of proxies, either because the issue is very complex or because there are no available data. Hence, the evidence is never self-evident and does not reflect an incontestable truth. Rather, rankings measure what is easy and predictable, and concentrate on past performance, which benefits older HEIs at the expense of new institutions. Quantification is used as a proxy for quality. Given all these shortcomings, it should not be surprising that rankings do not unreservedly measure the quality of education.

Policy choices

Since the arrival of global rankings, it is not uncommon for governments to gauge national global competitiveness and positioning within the world-order in terms of the rank of their universities, or to attribute national ambitions to a position in the rankings. The ongoing global economic crisis has

further highlighted the importance of ‘academic capital’ and investment as critical indicators of competitiveness and global success. These developments have sparked a debate about the need for higher education reform. Because the price tag for achieving world-class status is so high, many governments and HEIs are questioning their commitment to mass higher education as funding comes under strain; others are concerned their universities may not be elite or selective enough:

We want the best universities in the world.... How many universities do we have? 83? We’re not going to divide the money by 83
(Nicolas Sarkozy, President, France, 2009).

The Higher Education Endowment Fund... [will] support the emergence of world-class institutions;... We are trying to leapfrog universities above the norm
(Julie Bishop, Federal Education, Science and Training Minister, Australia, 2007).

Work [is underway] on establishing the country’s first ‘research-intensive’ university... universities which earned a place in the top 500 rankings... were entitled to financial support
(Jurin Laksanavisit, Education Minister, Thailand, 2009).

The price tag to get one Nigerian university into the global top 200 is put at NGN 5.7 billion [€31 m] annually for at least ten years
(National Universities Commission, Nigeria).

Many governments have embarked on significant restructuring of their higher education and research systems.

The world-class university has become the panacea for ensuring success in the global economy, based on the characteristics of the top 20, 50 or 100 globally ranked universities. China, Finland, France, Germany, India, Japan, Latvia, Malaysia, Russia, Singapore, South Korea, Spain, Taiwan and Viet Nam – among many other countries – have launched initiatives to create world-class universities. Individual US states (e.g. Texas and Kentucky) have similarly sought to build or boost flagship universities, elevating them to what is known as Tier One status, a reference to *USN&WR* College Rankings. In contrast, countries such as Australia, Ireland and Norway are emphasizing the importance of the system being ‘world class’.

There are two basic policy models.

- 1. The *Neo-liberal model* seeks to concentrate resources in a small number of elite or world class universities. This is often referred to as the ‘Harvard-here’ model because it aims to replicate the experience of Harvard University or the Ivy League (see Figure 1). This is to be achieved by encouraging greater vertical or hierarchical (reputational) differentiation between HEIs, with greater distinction between research (elite) universities and teaching (mass) HEIs. Resource allocation may be linked to institutional profiling or other classification tools informed by rankings.

Figure 1. The ‘Harvard here’ model

	Field 1	Field 2	Field 3	Field 4
PhDs and research intensive	Institution A1			
Masters and some research	Institution B1			
	Institution B2			
Baccalaureates and scholarship	Institution C1			
	Institution C2			
	Institution C3			
	Institution C4			
Diplomas and extension services	Institution D1			
	Institution D2			
	Institution D3			
	Institution D4			
	Institution D5			

Source: Gavin Moodie, pers. comm. 7 June 2009.

- 2. The *Social-democratic model* seeks to balance excellence and equity by supporting the development of a world-class system of higher education across a country. This is to be achieved by strengthening horizontal (mission or functional) differentiation across a diverse portfolio of high-performing HEIs, some of which may be globally or regionally focused. Emphasis is on supporting ‘excellence’ wherever it occurs by encouraging HEIs to each specialize in specific disciplines or knowledge domain according to their expertise, competence, demand and/or mission (see Figure 2). There is a strong emphasis on a close correlation between teaching and research, and knowledge production, commercialization and dissemination as components of an integrated process. Institutional compacts or strategic dialogues may be used as a policy tool to enforce mission specialization and differentiation.

Figure 2. Field or mission specialization model

	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10
PhDs and research intensive	Institution 1		Institution 2		Institution 3		Institution 4		Institution 5	
Masters and some research										
Baccalaureates and scholarship										
Diplomas and extension services										

Source: Gavin Moodie, pers. comm. 7 June 2009.

Rankings have also had an influence on other aspects of government policy. Some governments, such as the Czech Republic, Jordan, Macedonia and Romania, are using rankings to help assess and/or classify HEIs within their own countries. Article 159 of the Macedonia Law on Higher Education (2008) grants automatic recognition to graduates of the top 500 THE-QS, ARWU or *USN&WR* rankings without going through a more complex recognition process. Brazil, Chile, Kazakhstan, Mongolia, Qatar, Singapore and Saudi Arabia, to name a few, restrict government scholarships for international study to students admitted to top ranking universities (Salmi and Saroyan 2007); Singapore's Foreign Specialist Institute has similar criteria for institutional collaboration. Dutch (2008) and Danish (2011) immigration laws grant special recognition to foreigners from top universities (150 and 20 respectively). And finally, several US states benchmark academic salaries (Florida and Arizona) or 'fold-in' rankings into performance measurement systems (Indiana, Minnesota and Texas).

World-class universities or world-class systems?

Rankings are influencing our perceptions of and decisions about higher education policy in two major ways:

1. Rankings have highlighted the importance of quality and striving for excellence in a competitive world. As a result, international or cross-jurisdictional comparisons are likely to remain a constant feature of a

globalized world. As the Australian Federal Minister for Innovation, Industry, Science and Research said more succinctly, it 'isn't enough to just go around telling ourselves how good we are – we need to measure ourselves objectively against the world's best' (Carr, 2009). Thus, rankings have influenced the way we think about higher education, and have raised our collective consciousness about the necessity for greater public accountability and transparency, and to demonstrate value for money and return on public investment.

2. Rankings have highlighted the importance of investment in higher education as a key factor determining sustainable social and economic development in the knowledge economy. In the twenty-first century, the capacity to compete globally is determined by the calibre of the higher education system, its graduates and its contribution to 'world science'; talent and knowledge creation are the new oil. The indicators measure attributes of socio-economic advantage, age and wealth; the results are presented as a 'league table' or 'academic world order' which, in turn, is used for global positioning and branding in order to attract capital, talent and tourism. This is putting pressure on governments to increase or at least maintain investment in higher education in order to ensure national competitiveness.

Given this effect, many governments use rankings, inter alia, to classify and accredit HEIs, allocate resources, drive change, assess student learning and learning outcomes and/or evaluate faculty performance and productivity, at the national and institutional level. They are used as an accountability or transparency tool, especially in societies and institutions where this culture and practices are weak or immature.

Many myths are promulgated about the value of rankings for policy-making or strategic decision-making. But, rankings should be used cautiously – and only as part of an overall quality assurance and assessment or benchmarking system and not as a stand-alone evaluation tool. Four examples will suffice:

1. *Rankings provide useful comparative information.* It is often argued that rankings provide useful comparative information about university performance which facilitates student choice and policy-making. But HEIs are complex organizations, providing education from undergraduate to PhD level, conducting research, participating in outreach initiatives, and being a source of innovation and entrepreneurship. For many countries, they are a critical engine of nation-building, a regional, national and global gateway attracting highly skilled talent and investment, actively

engaging with a diverse range of stakeholders through knowledge and technology transfer, and underpinning the global competitiveness of nations and regions... As a group, they sit within vastly different national context, underpinned by different value systems, meeting the needs of demographically, ethnically and culturally diverse populations, and responding to complex and challenging political-economic environments (Hazelkorn, 2011a: 78).

Publicly funded, private not-for-profit and for-profit HEIs operate in very different financial circumstances, and with different levels of governance and financial autonomy. There is a wide variance of students served by these institutions. It is difficult to compare institutions – or indeed academic departments – across different national contexts or to measure quality through measurements of quantification. But this is what rankings purport to do.

2. *Rankings provide good measures for research.* Despite criticism about the disproportionate focus on research, the choice of indicators is usually considered meaningful or 'plausible'. However, as discussed above, the data primarily reflect basic research in the bio- and medical sciences. As a consequence, some disciplines are valued as more important than others, and research's contribution to society and the economy is seen primarily as something which occurs only within the academy. In this way, rankings misrepresent the breadth and dynamism of the research-innovation process and higher education's role as part of the innovation eco-system – what the European Union calls the 'knowledge triangle' of education/learning, research/discovery and innovation/engagement. This narrow conceptualization of research is helping to drive a wedge between teaching and research at a time when policy-makers and educators advocate the need for more research-informed teaching (Hazelkorn, 2009).
3. *Concentrating resources in a few world-class universities.* There is a strong view internationally that argues the policy priority should be to concentrate resources in a few elite universities in order to 'lift all boats', using a metaphor often associated with economic growth. This view is based on the assumption that high-ranked HEIs are better quality institutions than those which are either lower ranked or not ranked. However, while top-ranked universities may produce the majority of all peer-reviewed papers, those who publish in refereed journals do not necessarily have the application of their knowledge as an objective. Nor is it obvious that this kind of investment will create sufficient,

patentable or transferable knowledge that can be exploited and used by society. Concentrating research in a few institutions could reduce the overall national research capacity with perverse ‘knock-on consequences for regional economic performance and the capacity for technology innovation’ (Adams and Gurney, 2010; Lambert, 2003: 6). Furthermore, there is no evidence that more concentrated national systems generate higher citation impact than those in which output is more evenly distributed, because concentration is most relevant in only four disciplines of ‘big science’: biological sciences, clinical medicine, molecular biology/biochemistry and physics (Moed, 2006). The key factor underpinning improved national research performance and competitiveness is consistent investment.

4. *Rankings measure quality.* Most (global) rankings primarily measure research, which is widely interpreted as being equivalent to education quality. This has led to much confusion. The choice of indicators is based on the opinion and values of the different ranking organizations, influenced to a great extent by the available data. But the indicators don’t and can’t measure how good the teaching is, how well students learn or if the facilities and resources are actually used by the students. They take no account of how well a HEI fulfils its mission or contributes to society. ‘Which university is best’ can be asked differently depending upon who is asking the question, which question is being asked and for what purpose. Is the user a student choosing a college/university in his/her own country or abroad or a government seeking to make decisions about resource allocation?

It is time to look at alternatives (see Hazelkorn, 2012a). Rankings encourage us to emulate the achievements of a few elite ‘world-class universities’ as the panacea for success in today’s competitive world. An alternative approach says that what matters for sustainable social and economic prosperity is how governments balance the needs of all its citizens by creating a ‘world-class system’, characterized by:

- having a coherent portfolio of horizontally differentiated high-performing and actively engaged institutions – providing a breadth of educational, research and student experiences;
- having open and competitive education, offering the widest chance to the broadest number of students;
- developing knowledge and skills that citizens need to contribute to society throughout their lives, while attracting international talent;

- producing graduates able to succeed in the labour market, fuelling and sustaining personal, social and economic development, and underpinning civil society; and
- operating successfully in the global market, being international in perspective and responsive to change.

A whole-of-system benchmarking methodology, using a sophisticated set of quantitative and qualitative accountability and transparency instruments, provides a better way to assess and ensure quality (see Salmi, 2012). This method can be used to (i) highlight and accord parity of esteem to diverse institutional profiles to facilitate public comparability, democratic decision-making and institutional benchmarking; (ii) identify what matters and assess those aspects of higher education, including improvements in performance not simply absolute performance; and (iii) enable diverse users and stakeholders to design fit-for-purpose indicators and scenarios customized to individual stakeholder requirements – but this does make international comparison difficult. Because any assessment system can incentivize institutional and individual behaviour, it is vital that the choice of indicators recognize, support and reward the full spectrum of higher education endeavours across education/learning, research/discovery and innovation/engagement. To be meaningful, comparisons should be conducted at regular intervals. Critically, the collection and control of data and verification of the processes should not be the remit of private/commercial providers or self-appointed auditors; UNESCO might see this as a useful role for itself, perhaps in collaboration with other international organizations.

Rankings are only one form of comparison; they are popular today because of their simplicity. However, their indicators of success are misleading. Rather than using definitions of excellence designed by others for other purposes, what matters most is whether HEIs fulfil the purpose and functions that governments and society want them to fulfil.

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Chapter 5

Rankings and online learning: a disruptive combination for higher education?

John Daniel

Introduction

Taking, as a starting point, 1530, when the Lutheran Church was founded, some 66 institutions that existed then still exist today in the Western World in recognizable form: the Catholic Church, the Lutheran Church, the parliaments of Iceland and the Isle of Man, and 62 universities... They have experienced wars, revolutions, depressions, and industrial transformations, and have come out less changed than almost any other segment of their societies (Carnegie Commission, 1968).

The aphorism above, coined by Clark Kerr's Carnegie Commission in 1968, should make us hesitate to predict substantive change in universities. Forecasts of radical change in higher education have often turned out to be myths. Here are six:

- First, eighteen years ago the management guru Peter Drucker predicted that in thirty years the big university campuses would be relics – yet twelve years before his deadline many seem as vibrant than ever and few appear to be on their last legs.
- Second – which may partly explain the continuing ebullience of the sector – enrolment growth has been consistently underestimated, particularly as concerns women. The desire for access to higher education among most of the world's population is stronger than ever.
- Third, when higher education was declared to be a tradable commodity under the General Agreement on Trade in Services (GATS) a decade ago there was panic in academia about imminent commercialization – yet most of the world's universities are still public institutions with an educational ethos.
- Fourth, some observers claimed that today's young students are a new breed of digital natives who would create a generational divide in study habits – yet recent research on thousands of students of all ages finds no such divide.
- Fifth, the hype around the dotcom frenzy in 1999–2000 claimed that all education would soon go online – yet to date it seems that universities have absorbed the virtual world rather than allowing it to absorb them.
- Sixth, despite the efforts of some governments to limit the research function to a limited number of institutions, most universities continue to conduct research and aspire to expand it.

This list appears to support the notion that higher education develops by evolution rather than revolution. However, it is too soon to dismiss all these

forecasts as myths. We shall identify two key drivers of change and argue that their combined effect could be to split higher education.

In 1971 Richard Nixon asked the Chinese leader Zhou Enlai what he thought had been the impact of the French revolution. Zhou replied that it was too early to tell. Most commentators assumed that the leaders were referring to the storming of the Bastille in 1789 and seized on the story as a telling illustration of China's talent for long-term thinking. Nixon's interpreter, however, insists that Zhou was actually referring to the much more recent 1968 student uprising in France (*les événements de mai 1968*), which makes more sense (McGregor, 2011).

When the University of Paris erupted in 1968 the protests inspired some of the most memorable slogans and graffiti of the mid-twentieth century, although the students were much less succinct about the reforms they actually sought. In 1971 it was indeed much too early for Zhou to provide Nixon with an impact analysis. Four decades later, however, higher education has changed considerably, although not in the ways that the students campaigned for, nor as a result of their actions. That is because the two drivers of change in contemporary higher education on which we shall focus, rankings and online learning, were absent in 1968.

Online learning

The first driver of change is the internet and the online world that it has created. A year after the Paris riots, when he launched the UK Open University in 1969, the founding Chancellor, Lord Geoffrey Crowther, said that:

The world is caught in a communications revolution, the effects of which will go beyond those of the industrial revolution of two centuries ago. Then the great advance was the invention of machines to multiply the potency of men's muscles. Now the great new advance is the invention of machines to multiply the potency of men's minds. As the steam engine was to the first revolution, so the computer is to the second. It has been said that the addiction of the traditional university to the lecture room is a sign of its inability to adjust to the development of the printing press. That, of course, is unjust. But at least no such reproach will be levelled at the Open University in the communications revolution. Every new form of human communication will

be examined to see how it can be used to raise and broaden the level of human understanding. (Northcott, 1976)

Lord Crowther could scarcely have imagined where this communications revolution would take us four decades later. Online and mobile communications (ICT) have lessened the significance of national borders and disrupted many business models. When re-fuelling their vehicles, buying books or arranging travel, consumers are opting increasingly for self-service models made possible by ICT. This trend is now appearing in universities.

In his report *2011 Outlook for Online Learning and Distance Education*, Bates (2011) identified three key trends in US higher education. It is fair to assume that other countries will follow similar paths as connectivity improves.

The first trend is the rapid growth of online learning. Enrolment in fully online (distance) courses in the United States expanded by 21 per cent between 2009 and 2010 compared to a 2 per cent expansion in campus-based enrolments.

Bates' second finding is that, despite this growth, institutional goals for online learning in public sector higher education are short on ambition. He argues that the intelligent use of technology could help higher education to accommodate more students, improve learning outcomes, provide more flexible access and do all this at less cost. Instead, he found that costs are rising because investment in technology and staff is increasing without replacing other activities. There is no evidence of improved learning outcomes and a failure to meet best quality standards for online learning in some institutions. In general, the traditional US public higher education sector seems to have little heart for online learning. Many institutions charge higher fees to online students, even though the costs of serving them are presumably lower, suggesting that they would like to discourage this development.

A third finding should stimulate the public sector to take the rapidly growing demand for online learning more seriously. The US for-profit sector has a much higher proportion of the total online market (32 per cent) compared to its share of the overall higher education market (7 per cent). Seven of the ten US institutions with the highest online enrolments are for-profits. For-profits are better placed to expand online because they do not have to worry about resistance from academic staff, nor about exploiting their earlier investment in campus facilities. Furthermore, the

for-profits use a team approach to the development of online learning courses and student support, whereas many public institutions simply rely on individual academics to create and support online versions of their classroom courses. Bates calls this the 'Lone Ranger' model and argues that it is less likely to produce sustainable online learning of quality than the team approach.

Finally, he notes that over 80 per cent of US students are expected to be taking courses online in 2014, up from 44 per cent in 2009. Clearly, the providers that are already established in this mode of delivery (i.e. the for-profits) will have the advantage).

Indeed, a UK Report, *Collaborate to Compete: Seizing the Opportunity for Online Learning for UK Higher Education*, explicitly recommends that public higher education institutions should link up with for-profit companies in order not to get left behind in offering online learning (HEFCE, 2011). This is already a growing trend in the United States. For example, Best Associates, a Dallas-based merchant bank with various investments in education, operates an Academic Partnerships programme with a steadily growing number of state universities. The basis of the model is to help these institutions offer high-demand and socially important programmes (e.g. M.Ed., B.Sc. Nursing) online at scale. The public institution sets the fees, of which it retains 20–30 per cent with the rest going to Best Associates. The system can operate successfully with much lower fees than these institutions would normally charge. Some have reduced their fees substantially, but others have not.

Bates concludes his report by alerting institutions to a growing market that is not well served by campus-based education. In his view, public colleges and universities are not moving into online distance learning fast enough to meet the demand. 'If public institutions do not step up to the plate, then the corporate for-profit sector will'. With access to broadband internet connections spreading rapidly this statement may well have global validity and indicates how online learning could disrupt higher education systems. Will they split over the coming years into a public sector focused on research and a for-profit sector doing most of the teaching through online learning? If so, does it matter? Some governments would like to see higher education divide itself into research universities and teaching institutions. Extrapolating the trends Bates has identified suggests that their wish may come true, with the added difference that most research will take place in publicly supported institutions, while most teaching will be done by for-profit enterprises.

Rankings: compounding the problem

At a time when public universities should be getting organized to expand online teaching of quality in response to student demand, they are falling for the temptation to expend energy and resources on gaining higher places in university rankings, which is a probably a more congenial goal for most university presidents and faculty.

The papers presented at UNESCO's May 2011 Forum on Rankings, which are the substance of this book, suggest that rankings have reached the stage, both nationally and internationally, of encouraging a thousand flowers to bloom. This may blunt the disruptive effect of rankings on higher education systems because the emergence of rankings based on a wide range of criteria helps different types of institutions within diverse higher education systems compare themselves usefully with their peers.

Nevertheless, at present the rankings with most traction in the public mind are based on research performance. Ben Wildavsky's readable book, *The Great Brain Race: How Global Universities are Reshaping the World*, is a good example (Wildavsky, 2010). Wildavsky is writing primarily about the 3 per cent of the world's 17,000 higher education institutions that figure in contemporary global rankings. These rankings, such as those from Shanghai's Jiao Tong University, are essentially about performance in research. In response to the question 'where is teaching in the international rankings?' the American higher education scholar Philip Altbach replies, 'In a word – *nowhere*'.

Wildavsky cites Jamil Salmi's book, *The Challenge of Establishing World Class Universities*, which analyses what makes for a top university (Salmi, 2009). Here again, the designation refers to only a tiny fraction of the world's universities, but some countries are lavishing funds on favoured institutions in a probably futile attempt to get them into the list of the top 100 – or top 300 – research universities. Having identified the trend, Salmi is now sounding a warning note. He now writes of *Nine Common Errors in Building a World Class University* and cautions those focusing on boosting one or two institutions not to neglect 'full alignment with the national tertiary education strategy and to avoid distortions in resource allocation patterns within the sector' (Salmi, 2010).

This is happening at a time when the demand for higher learning is burgeoning in much of the world. Thirty per cent of the global population is

under fifteen and generally accepted forecasts suggest that, in round figures, the current worldwide enrolment in tertiary education will grow from 150 million now to 250 million by 2025. Simple arithmetic on these forecasts indicates that the world will need to create four sizeable (30,000 students) new universities every week for the next fifteen years or adopt alternative approaches.

Sadly, however, universities are much less eager to be ranked on the quality of their teaching than on the quality of their research. Between 1995 and 2004 the UK's Quality Assurance Agency conducted assessments of teaching quality, discipline by discipline, in all universities. A number of disciplines were assessed nationwide each year on six dimensions, giving a maximum score of 24 per discipline. The press was not slow to construct rankings based on each university's aggregate score and these evolved annually as more disciplines were assessed. Table 1 shows the nine most highly ranked institutions in 2004 when the teaching assessment process was terminated, allegedly because the major research universities, unhappy with their standing in this type of ranking, lobbied at the highest political level for its abolition. The placing of the Open University just above Oxford is a testimony to the potential of open, distance and technology-mediated learning to offer quality teaching and a sign of changing times.

A promising feature of UNESCO's May 2011 forum on rankings was the evidence it produced of a broadening of approaches to their construction, aimed both at beefing up the methodology of existing rankings and developing measures of how well institutions implement their declared missions. The latter is important because of the continuing growth and diversification of the student body. As the cybernetic Principle of Requisite Variety (Ashby, 1956) states, an effective system – including an effective higher education system – must be able to deploy a variety of responses that matches the demands made on it.

Institutions should be encouraged to develop their own niches in this complex landscape. As Ernie Boyer wrote in his seminal book *Scholarship Reconsidered* (Boyer, 1990):

We need a climate in which colleges and universities are less imitative, taking pride in their uniqueness. It's time to end the suffocating practice in which colleges and universities measure themselves far too frequently by external status rather than by values determined by their own distinctive mission.

Table 1. Britain's top nine universities

BRITAIN'S TOP NINE UNIVERSITIES		
Quality Rankings of Teaching		
based on all subject assessments 1995-2004		
<i>(Sunday Times University Guide 2004)</i>		
1	Cambridge	96%
2	Loughborough	95%
3	London School of Economics	88%
4	York	88%
5	The Open University	87%
6	Oxford	86%
7	Imperial College	82%
8	University College London	77%
9	Essex	77%
...and tops for student satisfaction		

Source: The Sunday Times University Guide 2004.

The cost of higher education

We have argued, however, that at a time when students are opting for online learning in larger numbers, public institutions are failing to adapt their missions to respond adequately to this trend. There are a number of reasons for this, one being a tendency to worry more about research rankings.

Another factor, which will compound the disruptive combination of rankings and online learning, is the likelihood of radical differentiation in the costs of higher education. Technology-mediated learning has a very different cost structure from classroom instruction and for-profit providers are better placed to take advantage of it. Fee structures seem ripe for disruption.

The United States is an extreme case, but since 1986 college fees there have risen by 467 per cent compared to inflation of 107 per cent in the economy overall. The impact of the post-2008 recession on US household incomes, combined with public concern about the heavy debt burdens on students and graduates, is finally putting downward pressure on fee levels and

creating incentives to offer less expensive options. Consumers have begun to notice and resist these rising fees, which inspired Robert Archibald and David Feldman (2010) to justify high fees in their book *Why Does College Cost So Much?*

These American economists write only about the US experience, but the principles and arguments they evoke have broad relevance. They situate the higher education enterprise in the context of the wider economy and make some careful comparisons with the evolution of prices in a range of other industries over more than fifty years. In real terms the prices of manufactures have gone down; those of many services, such as hairdressing, have stayed roughly constant; whereas the prices of personal services by professionals with high training requirements have risen in real terms. They cite academics, dentists, horn players and stockbrokers as examples in this last category.

Are such comparisons valid? William G. Bowen and W.J. Baumol labelled the link between the high prices of certain services and the cost of training the professionals who deliver them in a number of papers on the economies of the performing arts (Baumol and Bowen, 1965). Their argument was that salaries in these and similar areas are pushed up, even if their productivity remains static, by productivity-linked salary increases in other sectors of the economy. Archibald and Feldman adopt this reasoning as the basis for their book, dismissing the possibility of using technology to increase productivity in higher education.

William Bowen (2011) himself, however, is not so sure. In his foreword to *Unlocking the Gates: How and Why Leading Universities are Opening Up Access to Their Courses* by Taylor Walsh (2011), he says that he is rethinking his scepticism about the potential of new technologies to improve productivity in higher education.

It is not surprising that the price of dentistry rises by more than inflation because, despite the use of increasingly sophisticated equipment, it remains a personal service with little scope for automation. Horn players (as examples of orchestral musicians) are a more debatable case. They are unquestionably a rare and specialized breed, but their productivity has increased dramatically in recent decades simply because most people now listen to horn players, with equal or greater enjoyment and at much lower cost, on iPods and CDs instead of going to concert halls. The most interesting comparison is with stockbrokers. Their prices went up more rapidly than those of higher education until the 1980s and then fell steadily to a relatively much lower

level. This was because brokerage services went online, giving the individual client much more control.

That is surely a more valid comparator for higher education. Technology now allows institutions to deliver much of the content of their programmes through media and to give students more control as distance learners. This can cut costs dramatically without loss of effectiveness.

The goal of most governments is to widen access to education while improving its quality and reducing its cost. Visualizing this challenge as a triangle of vectors makes the simple point that with conventional classroom teaching there is little scope to alter these vectors advantageously because improving one vector will worsen the others (Daniel, 2010: 51). Pack more students into the class and quality will be perceived to suffer. Try to improve quality by providing more learning materials or better teachers and the cost will go up. Cutting costs may endanger both access and quality. We call this the 'iron triangle'. It has constrained the expansion of education throughout history and has created in the public mind an insidious link between the quality of education and its exclusiveness. If this were the end of the story, Archibald and Feldman's conclusion that the cost of higher education must rise inexorably would be correct.

However, technology is able to stretch this triangle to achieve the revolution of wider access, higher quality and lower cost. Traditional distance education institutions, often called open universities, have been doing this for years. Not only do they enrol millions of students but, as noted above, some also achieve high ratings for the quality of their teaching. This revolution of providing high-quality teaching to large numbers at low cost was achieved with the traditional distance learning technologies of the industrial era (print, audio, video and stand-alone computers). It was based on the principles of industrial production, which were identified two centuries ago by Adam Smith as division of labour, specialization, economies of scale, and the use of machines and media.

Today's new generation of digital technology is characterized by the concepts of networks, connectedness, collaboration and community. As well as increasing the economies of scale, since digital material costs almost nothing to distribute, this technology also speeds up and intensifies the interactions possible between students and their teachers. The result has been to take technology-mediated learning far beyond the confines of the open universities. Most traditional campus universities, at least in countries that have a basic IT infrastructure, are now dabbling in distance

education online and students are seeking out this form of teaching in larger and larger numbers, as noted earlier. Moreover, forecasts that digital technology would create a generation gap in higher education, with young 'digital natives' seeking out online learning while older students avoided it, were simply wrong.

Research by the UK Open University on its own highly diverse student body concludes that while there are clear differences between older and younger people in their use of technology, there is no evidence of a clear break between the two separate populations (Jones and Hosein, 2010). The research was conducted on an age-stratified, gender-balanced cohort of 7,000 students aged between 21 and 100. The results showed that while there are differences in attitudes to and familiarity with digital technology, they are not lined up on each side of any kind of well-defined discontinuity. The change is gradual, age group to age group. There is no coherent 'net generation'.

However, one extremely important discovery was a correlation – independent of age – between attitudes to technology and approaches to studying. Students who more readily use technology for their studies are more likely than others to be deeply engaged with their work: 'Those students who had more positive attitudes to technology were more likely to adopt a deep approach to studying, more likely to adopt a strategic approach to studying and less likely to adopt a surface approach to studying.'

This evidence that, at any age, a good attitude to technology correlates with good study habits is also important in giving the lie to the view that online learning tends to trivialize learning. Instead, as we argued earlier, the intelligent use of technology can improve the quality of learning.

Changing corporate structures

Technology-mediated learning can reduce costs and stimulate good study habits in students of all ages. Yet we have shown that public sector campus universities are not exploiting this opportunity well, partly because chasing higher places in research rankings has more appeal. A key question is whether we are seeing the emergence of a new business model that will substantially change the pattern of corporate structures within higher education systems as the for-profit sector steadily expands.

Again, the United States is the best place to see trends emerging. Although US tuition fees have risen faster than inflation for decades, there are signs that the situation has reached a tipping point. The fees bubble will not suddenly burst, but lower-cost alternatives to the current model of high-fee programmes will steadily take market share. Already some US states (e.g. Texas) are pressuring institutions to cut costs and fees, some major public institutions (e.g. the University of California) are finally taking online learning seriously, and models such as Best's Academic Partnerships will gain ground. The success of the Western Governors University, which was viewed as a rather peculiar initiative when it was created in the late 1990s, is an indicator of how things can change. This institution, which charges fees of US\$5,000 per annum and makes no demands on public funds, is attracting increasing numbers of students. The for-profit sector has ample room to cut fees and still make good profits. Currently this sector makes high profits because it operates a lower-cost model of provision, but can set fees comparable to those of the public sector with its higher cost base. As the public sector starts to cut fees the for-profit sector will be able to lead a downward trend.

What are the implications of an expanded role for the for-profit sector? In countries where tax codes and charitable status are clearly defined the distinction between private for-profit and private non-for-profit provision is easy to make. In most of the world, however, the distinction is not so clear and we shall use the term 'private' to designate both types of institutions. All private providers try to make a surplus and appear much the same on the ground, especially in developing countries. The private sector can be either homegrown or international. Note here that all providers, public or private, become private for-profit providers once they spread their wings outside their country of origin and offer programmes across borders. A public university is a private, for-profit provider when operating in another country, even though it may not initially repatriate its profits. Developing countries sometimes claim that the ethical standards of public institutions operating outside their home jurisdictions can be lower than those of avowedly commercial providers.

But even without the impact of online learning, the growth of private provision is essential to the expansion of postsecondary education in many countries. No government can fund all the post-secondary education its citizens want, so the choice is between either a public-sector monopoly giving inadequate provision or meeting the demand through a diversity of public and private institutions. This is changing patterns of provision.

In the Middle East, for example, rapidly increasing demand is driving the expansion of the private sector. Egypt needs 100 new universities and student numbers will double by 2030. In the United Arab Emirates the proportion of students in private HEIs jumped from 23 per cent to 60 per cent in 2012. A major Indian private institution works primarily through partnerships (e.g. with 180 universities in China). There, and in Africa, where it has a partnership with a well-known UK university, partner universities confer awards based on the Indian institution's courses and materials. In Africa the cost of delivery is low and a blended model is most successful.

A country such as Malaysia, which encourages private provision, has many lively homegrown post-secondary education businesses, the best of which also conduct research. Thailand and Viet Nam have private campuses of foreign public universities as well as local commercial providers. In Kenya, some private providers have international links, both to secure capital and to gain credibility by association with foreign institutions. This role of the private sector in expanding equitable provision is a question that exercises many developing country governments, even when their existing public systems, catering as they usually do to a small proportion of the population drawn largely from the urban elite, can hardly be described as equitable.

Post-secondary education must take up the challenge of serving the 4 billion people at the bottom of the world economic pyramid. As C.K. Prahalad (2004) demonstrated in the case of other businesses, to serve such people post-secondary education will require 'radical innovations in technology and business models', aspiring to 'an ideal of highly distributed small scale operations married to world-scale capabilities'. The likeliest candidate for a new business model is the combination of increasing connectivity and open educational resources (OER), which are content, software and tools developed on an open source model.

The key question is whether the private sector can be regulated without strangling it. Is it possible to develop some common principles of accountability and transparency for all providers of higher education? Quality assurance (QA) is a relatively recent concern in higher education in some countries. The issue is whether public and private institutions should be treated the same for QA purposes. Is the distinction between good and bad simply the dichotomy of corporate or public ownership? Ownership is important for the tax authorities but is not, in principle, relevant to quality. There are good and bad actors in the public sector and there should be the same quality thresholds for all.

Legitimate for-profit institutions welcome strong quality assurance frameworks, but ask that they be applied fairly across the whole higher education sector. Legitimate areas for regulation are the avoidance of excessive student loans, ground rules for acquiring accredited institutions, and processes for eliminating bad actors. The main plea is for a level playing field.

A disruptive model in the public sector: the Open Educational Resource University

We end with an example of a model being developed in the public sector that combines online learning with lower costs and new corporate structures. This is the Open Education Resource University that is being explored by a group of public universities from several countries. Open Educational Resources, or OER, are materials used to support education that may be freely accessed, reused, modified and shared by anyone (Butcher, 2010). They may well be the most radical technology-based tool poised to disrupt higher education. How might they help to widen access and cut costs?

Some institutions already have policies that encourage the use of OER so that each teacher does not have to re-invent the wheel in each of their courses. Once academics in the Education Faculty at the Asia eUniversity in Malaysia have agreed on course curriculum outlines they do not need to develop original learning materials – good quality OER for all the topics they require is already on the Web and they simply adapt them to their precise needs. Likewise, Canada's Athabasca University will not approve development of a course until the proposing department has shown that it has done a thorough search for relevant openly licensed material that can be used as a starting point. But some would go much further. Paul Stacey (2011), of Canada's BC Campus, has outlined the concept of *The University Open*. He points out that the combination of open source software, open access publishing, open educational resources and the general trend to open government creates the potential for a new paradigm in higher education. In February 2011 the Open Education Resource Foundation convened a meeting in New Zealand to operationalize the Open Educational Resource University, a concept developed from this thinking.

The idea is that students find their own content as OER; get tutoring from a global network of volunteers; are assessed, for a fee, by a participating

institution; and earn a credible credential. Such a system would reduce the cost of higher education dramatically and clearly has echoes of the University of London External System that innovated radically 150 years ago when it declared that all that mattered was performance in examinations, not how knowledge was acquired. That programme has produced five Nobel Laureates.

As regards the first step in this ladder, open educational resources are unquestionably being used. Literally millions of informal learners and students are using the open educational resources put out by MIT, the UK Open University and others to find better and clearer teaching than they are getting in the universities where they are registered. Thirty-two small states of the Commonwealth are working together within a network called the *Virtual University for Small States of the Commonwealth* to develop open educational resources that they can all adapt and use (Daniel and West, 2009).

The interest is considerable. The UKOU's OpenLearn site has 11 million users and hundreds of courses can be downloaded as interactive eBooks. Furthermore, with 300,000 downloads per week, the UKOU alone accounts for 10 per cent of all downloads from iTunesU. And we must not forget the worldwide viewing audience of hundreds of millions for OU/BBC TV programmes.

Martin Bean (2010), the UKOU vice-chancellor, argues that the task of universities today is to provide paths or steps from this informal cloud of learning towards formal study for those who wish to take them. Good paths will provide continuity of technology because millions of people around the world first encounter higher education institutions such as the UKOU through iTunesU, YouTube, TV broadcasts or the resources on various university websites. The thousands who then elect to enrol as students in these institutions will find themselves studying in similar digital environments.

What are the implications of this concept? The institutions best equipped to make a success of the Open Education Resource University are probably institutions in the public sector that already operate successfully in parts of this space and award reputable credentials. Such institutions must also have the right mindset. It would be difficult for a university that has put scarcity at the centre of its business model suddenly to embrace openness. In the coming years some universities will have to ask themselves whether they can sustain a model based on high fees and restricted access as other parts of the sector cut fees and widen access.

To examine how the OERU would work we can juxtapose Martin Bean's remark about leading learners step by step from the informal cloud of learning to formal study with Jim Taylor's representation of the steps in the Open Educational Resource University. The first step, namely access to open educational resource learning materials, is increasingly solid. The pool of OER is growing fast and it is progressively easier to find and retrieve them. The solidity of the top step, credible credentials, depends on the involvement of existing, reputable, accredited institutions that resonate with this approach.

What about the three intermediate steps? For the first, student support, distance-teaching institutions already have the skills necessary. They manage extensive networks of tutors or mentors. SUNY's Empire State College has unique skills for this task given that students will often not be working with material created by the institution, but with OER they have discovered for themselves. Its unusual mentoring model is well suited to this.

James Taylor (2011), one of the leading planners of the OERU, envisages the emergence of a body rather like *Médecins sans Frontières* or *Engineers without Borders*, which he calls Academic Volunteers International. That may work in some places, but having students buy support on a pay-as-you-go basis would also work and might make for a more sustainable model. Furthermore, social software is greatly enriching the possibilities for student support and interaction. For example, the UKOU's OpenLearn website is not just a repository of OER, but also a hive of activity involving many groups of learners. Digital technology is breathing new life into the notion of a community of scholars, and social software gives students the opportunity to create academic communities that take us well beyond the rather behaviourist forms of online learning that give some online learning a bad name. Some of this social learning activity involves various forms of informal assessment that can be most helpful in preparing students for the formal kind.

When we come to step three, assessment, it seems to us that payment is essential. However, this is well-travelled territory. It takes us back 150 years to the University of London External model with the difference, again, that some assessments would have to be designed for curricula developed by the student, not the institution. With credible assessment by reputable institutions the next step, the granting and transfer of credit, is straightforward and leads to the top step of credentials.

The discussions around the Open Educational Resource University assume that it will not be a new stand-alone accredited institution, but rather an umbrella organization for a network of participating institutions with

longstanding reputations and accreditation. Indeed, no established institution is likely to adopt the Open Educational Resource University model for its core operations in the foreseeable future since the revenues – as well, of course, as the costs – would be much lower than they are used to. It will be necessary to test the waters and USQ, which has a strong track record in open, distance and blended learning, intends to test the waters by offering studies on this model initially as part of its community service function. That seems a sensible approach.

Conclusion

We have argued that higher education systems will experience major disruptions in the coming years. The major cause will be the growing demand from students to learn online. Public-sector institutions are not responding adequately to this trend, partly because the long tradition of faculty individualism in teaching is not well suited to this mode of learning and partly because many universities place greater priority on improving their research rankings. This is creating a major opportunity for the private for-profit sector to expand its role in teaching. The cost structure of online learning creates a new business model that will put substantial downward pressure on fees, causing further challenges to a public sector that has acquired the habit of hiking fees faster than inflation. Some public institutions are fighting back with a very low-cost model, the Open Educational Resource University, although it is too early to judge its appeal to either students or institutions.

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Chapter 6

Ranking higher education institutions: a critical perspective

Peter Scott

Introduction

The ranking of higher education institutions has become a ubiquitous, even explosive, phenomenon; some would add it is also a perverse one. According to one source there are now six international rankings (including the Academic Ranking of Universities provided by the Shanghai Consultancy in Shanghai Jiao Tong University, the *Times Higher Education* ranking, now in partnership with Thomson Reuters, and the *QS* ranking – to name the three most influential). In addition, twenty-four countries have their own national rankings (nine in China, seven in the United States, three each in Chile, Germany and Romania, and two apiece in Spain, Switzerland and the United Kingdom) (Shanghai Rankings Consultancy, 2011). Almost certainly this is an underestimate, as new rankings are constantly being devised. Nor does this total include the large numbers of other rankings that seek to measure particular aspects of comparative performance – for example, ‘green’ universities or ‘safe’ universities.

Twenty-five years ago there were almost no – formal – rankings. Of course, there were national statistics about, and well-established hierarchies within, most national higher education systems – and, less categorically, informal ratings of leading universities in a global (or, at any rate, North Atlantic) context. These hierarchies have now been made explicit by what is best described as a ‘rankings industry’ in which newspapers and other publishers, national policy-makers and institutional leaders are all complicit – and which opponents, whether traditionalists who believe in the ‘privacy’ of universities or radicals who believe rankings privilege the already privileged, have been largely powerless to resist (Brown, 2006). In the process traditional hierarchies have been both reinforced, as these radicals fear. But, as traditionalists fear, these hierarchies have also been subverted by the exponential growth of rankings that emphasize different aspects of performance and rely on different methodologies. Rankings are certainly ‘fun’ – unlike funding perhaps, the other big topic that agitates higher education policy-makers (Altbach, 2010). But it is only recently that they have become the object of serious attention and attempts have been made to identify their origins and drivers, their impact on national policy-making and institutional management, and their evolution and typology (Dill and Soo, 2005; Hazelkorn, 2011; Sadlak and Liu, 2007; Salmi and Saroyan, 2007).

Origins and drivers

There have been many reasons for the rapid development of rankings, often described as ‘league tables’ (the analogy with football is far from accidental):

- Some are commercial. Mass participation has made higher education a matter of popular interest to an extent unimaginable in the more selective elite university systems of the past. As a result, a public appetite, even curiosity, has been created which commercial publishers have been eager to satisfy (and stimulate). But it is about more than commerce. Closely linked is a new social and cultural phenomenon, an intrusive and disturbing mediatization of nearly all aspects of political, professional (and private) life (Lundby, 2009).
- A second set of, closely related, reasons is related more profoundly to the phenomenon of mass higher education of which wider participation is only one aspect (Scott, 1995). In mass systems the balance shifts from the 'private world' of science, scholarship and elite undergraduate education to the 'public world' of more pervasive social engagement, not simply in terms of who is considered eligible to benefit from higher education (mass participation), but also of more accessible forms of knowledge production (impact, advocacy and multiple forms of translation and application) (Gibbons et al., 1994). This makes higher education everyone's business.
- A third set of reasons reflects the erosion of those qualities of trust and hierarchy that characterized those elite university systems. Paradoxically perhaps, it is the erosion of the formerly near-unchallengeable consensus about which were the 'best' (and, by extension, the 'less good') universities that has fuelled the appetite for formal rankings. Read in this way, rankings are related to unease about standards, to volatility of missions, and to the potential at any rate of establishing new criteria of quality and excellence. It may not be a coincidence that their popularity has taken place at the same time that the idea of 'risk society' has developed.
- A fourth set of reasons concern the global trend, although much stronger in some countries than others, to promote the 'market' in higher education at the expense of older notions of public service, social purpose or academic solidarity. One effect of the market has been to encourage greater competition among, between and within universities; another has been to place greater emphasis on marketing techniques, including 'playing' the league tables.
- A final set of, admittedly, more speculative reasons may even hint at suggestive links between university rankings and 'celebrity culture'. The development of rankings – in health outcomes, environmental impacts, customer satisfactions and (almost) everything else in addition to higher education – ostensibly designed to drive up performance disconcertingly mirrors the obsession with 'winners' and 'losers', through merit or chance, in the mass media.

These constitute a rich and potent, and confusing, mix of reasons: commercial exploitation, mediatization more generally, the impact of massification and the erosion of the once 'private' domain of the university, the insecurity (and erosion?) of the academic elite, the intrusion of the 'market' into public policy, the playful ephemera of post-industrial consumerism and post-modern infotainment. There are, of course, significant inconsistencies – and, therefore, tensions – between these different drivers. As a result there has been a proliferation of different rankings, mitigated to some extent by attempts to produce global 'meta' rankings. But this proliferation has also tended to reduce the categorical effects of rankings in a constant battle between clarity and complexity.

Impact on strategy and management

The impact of rankings on both national policy-making and institutional strategies and behaviour has also been far-reaching (King and Locke, 2008).

National policy-making

A jumbled rhetoric about the growth of a knowledge society – the inexorable forces of globalization, the need for a highly skilled workforce, the efficacy of applied research, the 'race to the top', and the rest – has gripped the imagination of national politicians, both right and left. One of the indicators of success in this high-tech Darwinian struggle for survival and mastery, has been taken to be the number of 'world-class' universities in each country – as measured, of course, by international rankings. However, the assumed correlation between 'world-class' universities and global economic success has been accepted without significant critical interrogation. As a result, two inconvenient facts have been generally overlooked:

1. The first is that, the greater the international reach of a university, the more its 'products' – whether highly skilled graduates or research outputs – become globally available, so undermining any purely national advantage. Global or 'world-leading' universities belong by definition to everyone; the scientific and social capital they generate cannot easily be monopolized. The advantages conferred on a nation by having more than its 'share' of such universities probably contributes more to national socio-political prestige than to economic effectiveness. In other words it is a reputational game.

2. The second is that the correspondence between academic prestige and economic success is typically weak. For example, in the United Kingdom where the 'world-class' university discourse is especially influential (because the United Kingdom has a disproportionate share of highly ranked universities), economic success, at any rate until the 2008 banking crisis, depended largely on the growth of financial services, although business and management were (and are) not among the United Kingdom's most highly ranked subjects. Only in biosciences has there been a reasonably convincing correlation, although the existence of a very large public customer in the shape of the National Health Service provides at least as convincing an explanation. Equally, economic growth especially in high-technology manufacturing has been rapid in countries that do not possess large number of highly ranked universities.

Institutional strategies – and behaviours

Institutional strategy and behaviour have also been significantly affected by rankings:

1. Firstly, rankings have contributed to a shift in the balance of authority within colleges and universities. Their influence has tended to strengthen the corporate 'core', where competition between universities is considered to be normal, at the expense of the academic 'periphery', where older habits of solidarity have persisted. Also, the crude reductionism inherent in rankings encounters fewer objections among institutional managers than among academics, who in addition may be queasy about the robustness of the methodologies employed.
2. Secondly, rankings have affected institutional strategies, often deeply. In many cases universities have adopted as an explicit target the goal of 'improving' their positions in the league tables. This has had two results. The first is that, even if they do not recognize it, institutions that adopt such goals have sacrificed a significant degree of their autonomy because such targets are positional rather than absolute (so their 'success' is dependent on the success, or failure, of other institutions). More fundamentally such targets are externally derived rather than internally generated. The second result is that 'planning' has tended to take on a new character. Instead of being concerned with developing longer-term academic visions, its focus has shifted to short-term 'brand' management – potentially with the same doleful consequences for academic freedom.

Evolution and typology

The development of rankings has typically progressed through three phases or generations: (i) primitive league tables reporting ‘public opinion’ in universities and/or listing the outcomes of policy interventions and funding allocations; (ii) more systematic rankings based on more detailed data published by ministries and other governmental agencies, as more coherent systems of higher education were established (and also the more detailed management information systems created within institutions); and, (iii) a proliferation of rankings in a more fragmented and quasi-market environment.

First-generation ranking: polls and lists

The first real league tables were created in the late 1970s and 1980s by journalists and without sanction from the leaders of higher education systems or institutions. Often the higher education establishment was actively opposed to these embryonic ‘league tables’, which were regarded as a vulgar intrusion into their, ideally private, affairs. The few academics that helped with the construction of these early rankings were treated as, at best, mavericks and, at worst, as collaborators. During this first phase rankings took two main forms:

- The first were in effect a version of the public opinion polls that, not coincidentally, were becoming more generally popular at the same time. The methodology was to survey the, inevitably subjective, opinions of heads of department and other subject specialists, secondary school teachers and the like. There was little attempt to collect more objective or empirical data. In essence the compilers of league tables were merely attempting to capture the tacit knowledge about ‘reputation’ and silent hierarchies about the performance of universities that already existed.
- The second form taken by rankings in effect was a response to the increasing transparency of policy instruments: funding allocations initially and predominantly, but also the first tentative measurements of institutional position and performance on which more formulaic funding allocations depended, and, of course, quality assessment indicators (although assessing threshold rather than comparative quality was of limited use to the compilers of rankings). Newspapers reported these new policy instruments, collating their results into simple ‘lists’. It is possible to regard these ‘lists’ as one aspect of the emergence of systems of higher education that implied some ordering of the institutions these systems comprised.

In this first phase, therefore, the development of rankings was in response to external trends – the more widespread use of polling data more generally, and in the particular context of higher education the evolution of more transparent policy instruments. But the initiative remained firmly with journalists; neither national policy-makers nor institutional leaders actively encouraged the creation of league tables.

Second-generation ranking: transparency, accountability and management information systems

In the second phase the first of these trends, the capture of tacit knowledge and the codification of silent hierarchies that already existed, became less important. In that sense rankings ceased to be – however remotely and perversely – collegial in their sources. ‘Opinion polls’ among deans and heads of department, or among secondary school teachers, disappeared or became only minor elements in the more elaborate rankings that began to appear in the 1990s. The main reason for this change was the availability of other data that apparently were more ‘objective’. These data still included the results of peer-review processes. But these were now mediated through formal systems of assessment of both teaching and, especially, research.

However, the second trend, the creation of higher education systems (including the growth of accountability systems) and the growth of management information systems within universities became more significant. This systematization and sophistication, of course, were themselves responses to the larger phenomenon of massification, both in the scale of higher education, but also its scope and complexity. They were also part of an even wider phenomenon – the revolution in information and communication technologies (both the scale of data collection and the ease of data manipulation).

These trends provided the raw material for the construction of new kinds of ranking. Firstly, explicit policy frameworks were established covering most or all types of higher education institutions, not simply universities. Because of their scale and breadth, these frameworks could no longer rely on informal knowledge networks but required ever more elaborate and transparent systems. Secondly, there was an inexorable shift from transparency to accountability. Even without the elaborate assessment regimes that accompanied the growth of the so-called ‘audit society’, transparent policy instruments made it possible to make comparisons and create lists. Finally, the size, complexity and heterogeneity of higher education institutions required the development

of sophisticated management information systems that generated increasing amounts of data (which, of course, was necessary to satisfy accountability requirements, but was even more necessary for institutional management).

As a result rankings took on a new character. They no longer had to be compiled from scratch. Media rankings relied less on any form of active journalism, explicitly directed towards collecting views and data about relative performance, and more on simply generating lists or league tables, derived from national or institutional data that, crucially, had been collected for other purposes. Variety was produced by choosing which of this data to use or by weighting it in different ways. Rankings also proliferated. Firstly, more accurate international comparisons became possible, as international statistics (if not systems) converged. Secondly, advocacy and activists groups – for example, trade unions or subject associations – produced rankings to strengthen their arguments. Policy advocacy now had to be ‘evidence-based’. Thirdly, universities constructed benchmark groups of comparator institutions as planning tools to measure their performance. As a result rankings were internalized in institutional planning systems.

Third-generation ranking: measuring and strengthening market performance

In the third and contemporary phase, all these trends – transparent policy instruments, accountability regimes and management information systems – have intensified. As a result the source material for constructing rankings has become even more wide-ranging. But these have been supplemented by two phenomena that are closely linked:

- The first is the shift towards the market. Tuition fees have been introduced and increased, usually justified by the alleged need to share costs between taxpayers and users of higher education. Competition between institutions has been positively encouraged, as has greater differentiation between missions. Higher fees have led to pressure on institutions to publish more detailed ‘public information’ (to assist student choice), while greater competition has encouraged them to devote more attention and resources to marketing (both the advertising of academic ‘products’ and more active ‘brand’ management). However, it is important to recognize that in most countries this shift towards the market has been politically mandated, so there has been no decline in assessment and accountability systems that grew up in the context of the coordination of public systems of higher education.

- The second phenomenon is the intense mediatization of policy-making, institutional management and, indeed, personal identity and self-realization. This can be observed in a range of different contexts: 'instant' 24-7 politics, celebrity culture and consumer relationships. Some attribute this phenomenon to the increasing power of the mass media as a result of the ICT revolution; traditional forms of publication have been supplemented by so-called 'social networking'; others prefer more structural, even philosophical, explanations such as the 'abolition' of time and space and the emergence of the 'extended present'. But, whatever explanation is preferred higher education is clearly an active arena of mediatization. 'Social networking' has become a key tool of marketing for many institutions as Facebook pages and Twitter sites have proliferated. For publishers high-profile rankings have become profitable products, just as transparency and accountability tools (and, in particular, research assessment) have increased the profitability of scientific publishing.

As a result of both phenomena, marketization and mediatization, rankings now occupy a central role in the consciousness of higher education as policy targets and as talking points. Also a paradoxical effect of marketization is that in some cases rankings have been 'nationalized', in the sense that universities are now required to publish comparative data to help students choose between institutions and courses.

Critiques of rankings

The rise of rankings has not gone unchallenged. Earlier criticisms that rankings were 'intrusive' have become less persuasive. The scale and cost of mass systems, and their engagement in processes of social change and economic development, have made it impossible any longer to regard higher education as a 'private' domain ruled by scientists, scholars and teachers. At the same time the pressure on all kinds of organization, private as well as public, to demonstrate their accountability to those who buy their products or use their services has increased, despite doubts about the long-term impact of this 'audit culture' on the independence of civil society institutions from both the state and the market.

However, other critiques have become more persuasive as the influence of rankings has increased. These can be grouped under two headings: technical and methodological critiques and more fundamental critiques that challenge the concepts and principles underpinning rankings.

Methodology

In the first group a number of shortcomings have been identified. These include reliance on readily available rather than relevant data, use of input data rather than data about outcomes, a lack of transparency (particularly when individual indicators are aggregated), and frequent changes in methodology that make consistent and sustained judgments difficult if not impossible. To remedy some of these shortcomings an International Rankings Expert Group (IREG) developed a number of criteria – the so-called ‘Berlin Principles’ – in 2006, and also established an Observatory on Academic Ranking and Excellence. The role of the Observatory is to audit (on a voluntary basis) individual rankings (IREG, 2010).

The criteria established by the Berlin Principles attempt to address many of the methodological objections that have been made to rankings. They include the need to make the purpose of rankings explicit; whenever possible, to use outcome measures rather than input data; to ensure that the methodology is fully transparent (particularly with regard to the weighting of composite indicators); to rely only on data that is ‘authorized, auditable and verifiable’; and, as far as possible, to maintain a consistent methodology. However, in practice, the compilers of rankings are forced to make a number of compromises:

- Firstly, most of the data on which rankings rely are not collected for the purposes of compiling rankings. Often they are linked to the distribution of resources. In other words their essence is not the crude ‘scores’ – the only element used in rankings – but the complex algorithms used to allocate resources. The same thing happens at the institutional level. For example, in the case of research assessment in the United Kingdom, some universities seek to maximize reputation and others income.
- Secondly, input data are easier to obtain and are probably more reliable than outcome measures, some of which are under at least the partial control of the institutions that are being ranked. Inputs and outcomes are clearly linked. More generously funded universities are not only able to offer their students a high-quality experience, they also tend to be the most privileged in terms of their historical prestige and student profiles. As a result employment rates among their graduates are likely to be superior.
- Thirdly, the most relevant data are rarely the most auditable and verifiable. Journalists, in particular, are used to ‘going with what we’ve got’. The shift from active journalism – for example, by organizing opinion polls among academic leaders – to passive reporting of published data

has made it more difficult to obtain relevant data. The most systematic bias, of course, is against teaching, the primary activity of (nearly) all universities, and in favour of research – the result of the dearth of reliable (and, in particular, comparative) data about the former and the wealth of such data about the latter.

- Finally, although transparency about the weighting of various elements within composite indicators certainly can help to expose the values attached to them by the compilers of rankings, it does not remove the element of subjectivity. So different weightings produce different results because judgments are being made, tacitly or deliberately, about the relative worth of different activities. Paradoxically, this was easier to justify when higher education systems were much smaller and institutional missions less divergent – although in practice there had been little demand for rankings – than in mass systems in which institutions have multiple missions, and in which also the demand for rankings is greatly increased (not least because of this diversity).

Principles

This paradox illustrates one of the more fundamental objections to rankings – the greater the appetite for rankings the more difficult they are to undertake. But three other, equally fundamental, questions must also be asked. The first is whether university performance should be measured (but also ranked) at all. The second is whether it can be measured successfully without perverse feedback loops being created. The third is what aspects of performance should be measured.

The first question is generally dismissed on the grounds that higher education cannot escape some measure of accountability, and for such accountability to be effective there must be appropriate tools. However, a number of issues need to be addressed before this first question can be answered out-of-hand. One is the precise degree of accountability. Open societies depend on vigorous and independent intermediary institutions, such as universities. Democratic states, therefore, must set limits to the extent of accountability, even when it is carried out to ensure that the ‘will of the people’ is respected. In other words, surveillance can be excessive – especially so in the case of institutions such as universities that embody values of critical enquiry and open-ended research. A second issue is the nature of accountability. While it may be necessary to measure performance, it may nevertheless be undesirable to rank it according to an absolute (and

reductionist?) scale. In some important respects rankings may reduce accountability because fitness-for-purpose often has to be sacrificed to one-size-fits-all.

The second question is harder to dismiss. It is a truism that no system of measurement can be effects-free. However carefully such systems are designed, and however ‘neutral’ their original intentions, they affect behaviour. Even a simple and essential requirement such as setting the timeframe within which performance is to be measured changes the ‘rules of the game’. For example, a five-year timeframe for research assessment, especially when it is combined with a minimum level of productivity, will encourage the production of short articles at the expense of longer books. In the wider context of rankings, especially when these institutional targets are set in terms of improved rankings, the temptation to indulge in ‘game playing’ can be considerable. Outright fraud has not been unknown – for example, overstated completion rates or unemployed graduates who ‘disappear’. But in a less extreme register there can be other examples. For example, universities may be tempted to discourage the recruitment of students with lower entry qualifications if ‘grade points’, or other proxies for academic preparation, contribute to higher rankings. Examples can approach the absurd. One Ivy League university, faced with a league table of the proportion of alumni who ‘give’ to their universities, simply assumed that all graduates who had not ‘given’ in the previous five years had died. Of course, there was no corresponding league table of mortality among graduates.

The third question is the most difficult of all. To produce valid comparisons, which excite newspaper readers or inform higher education applicants, institutions must be ranked according to common criteria. Ranking cannot be produced from a mass of incommensurable data. But to be accurate (and fair) rankings must take into account the different missions of institutions, especially within mass system enrolling up to and in excess of half the relevant age population. The criteria based on the Berlin Principles include the need to take account of these different missions and goals, acknowledgement of ‘linguistic, cultural, economic and historical contexts’ and recognition that quality is multi-dimensional and multi-perspective.

This trade-off between accessibility and accuracy cannot be fully resolved. The only workable solution is to assume that some missions and goals must take precedence over others. For example, the major global rankings such as the Shanghai and *Times Higher Education (THE)* rankings place great weight on measures of research performance, with an inevitable

bias towards blue-skies fundamental research at the expense of applied or translational research, and of international activity, such as the number of international staff and students. They place less weight on both teaching and a range of 'social' indicators (such as access and engagement). In other words these rankings adopt in an uncritical manner, and also reinforce, a particular notion of global 'success'. Some would argue that this notion of global academic 'success' has been developed within the wider context of a worldview that is essentially neo-liberal in its ideological preferences and hegemonic in its geopolitical framework.

The future of rankings

The popularity of rankings is such that these critiques have so far had limited impact. Instead, the higher education policy (and research) community has adopted an ambivalent attitude to rankings. It has generally accepted that rankings are here to stay, especially if national systems continue to evolve into quasi-markets under the influence of globalization. The challenge, therefore, is to improve rankings. Many of the contributors to the International Forum on Ranking and Accountability in Higher Education: Uses and Misuses, organized by UNESCO in cooperation with the OECD's Institutional Management in Higher Education (IMHE) programme and the World Bank (Paris, May 2011), adopted this broad, middle-ground position. So far this has proved to be the most popular and credible attempt to fashion 'fourth-generation ranking'. The European University Association (EUA) has also produced a sober and balanced report on rankings (Rauhvargers, 2011).

Meanwhile the 'rankings industry' races ahead, fuelled by the commercial ambitions of publishers, the 'student choice' policies adopted by many governments and the rivalry of aspirational university leaders. The methodologies used in the major global rankings have been improved, in the sense that they have become more transparent and more accurate data sources have been tapped. But, for reasons that have already been explored, there are limits to how much rankings can be 'improved' if they are to retain their cutting edge, and their ability to communicate simple 'league table' messages. At the heart of rankings must remain the essential belief in 'winners' and 'losers', the conviction that higher education is a competitive and positional good. That cannot change.

Those who are reluctant to accept this viewpoint and hold to the idea of higher education as an absolute good (and a good that is public and social as well as private and individual) need to think beyond simply ‘improving’ rankings. For them ‘fourth-generation ranking’ must abandon its essential purpose, to provide rankings that, however many elements they may contain, can be reduced to a single figure. But as rankings cannot simply be abolished, they can only be superseded by superior measures of university performance that combine in equal measure two different objectives: excellence and difference. One of the most interesting experiments in developing a credible alternative to one-dimensional rankings is the U-Map project – the European classification of universities (van Vught, 2009; van Vught et al., 2010). It is a map, not a ranking. Performance is assessed over five domains: teaching and learning, student profile, research performance, knowledge exchange, international orientation and regional engagement. The result is a profile, not a position in a league table.

The U-Map approach is not without its difficulties. On the one hand, it adopts some of the same success criteria as the Shanghai and *THE* rankings: research performance and international orientation. Within the currently dominant paradigm of the knowledge society and the free-market economy there is perhaps no alternative, although the internal contradictions of that paradigm (not simply in terms of equity but also of efficiency) and the challenges to it posed by new social movements may soon create a space in which alternatives can be conceived. On the other hand, U-Map does not produce ‘lists’ that can be translated into newspaper headlines, ‘best buy’ guides or political initiatives to boost the number of ‘world leading’ universities. Nevertheless, U-Map offers a more sophisticated and nuanced approach to assessing success in modern higher education systems composed of institutions with multiple missions and of different types of institution.

The alternative strategy available to critics of rankings is to encourage the proliferation of rankings with different methodologies, different weightings and different orientations. Although no single ranking can ever be satisfactory, a plurality of rankings may begin to capture the diversity of twenty-first-century higher education. By striving for serial exactitude across an ever-wider range of domains, fuzziness may be achieved. This would be a bold gamble. But it might just be the only available strategy if more sophisticated tools for describing, and assessing the success of, individual universities such as U-Map fail to establish themselves as ‘fourth generation ranking’.

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Chapter 7

Rankings, new accountability tools and quality assurance

Judith Eaton

Quality assurance and accreditation in higher education have experienced a major expansion over the past twenty years.¹ This growth has accompanied the expansion or ‘massification’ of higher education as more and more countries around the world focus on access to colleges and universities as vital to the future success of societies.

Quality assurance and accreditation are about establishing, maintaining and enhancing the quality of the academic work of higher education institutions. They are the oldest forms of quality review of colleges and universities, addressing, for example, teaching and learning, curriculum, faculty performance, advising and counselling, and research. Typically, national, regional or international bodies that are government-based or non-governmental carry out this work.

Until recently, quality assurance efforts around the world shared a small number of key characteristics. They focused on either entire colleges or universities or on specific programmes such as engineering or law or medicine. Quality assurance is peer-based, with academics reviewing academics, relying on self-evaluation. It is standards-based, with academics setting expectations of institutional or programme performance. It is, in general, a formative evaluation, concentrating on how to strengthen academic performance rather than making an up-or-down judgment. Standards are primarily qualitative, calling for professional judgment. It is also evidence-based, with institutions or programmes expected to provide information about the extent to which standards are met.

During the past ten years, however, the demands on higher education to provide evidence of quality have gone beyond these familiar characteristics. Increasingly, the focus has been on direct accountability to the public, with diminishing investment in relying exclusively on an academically driven, peer-based system. Societies are increasingly reluctant to rely only on the professionals in the field to make judgments about quality. This is accompanied by diminished interest in quality improvement.

New accountability tools

Elected officials in governments around the world emphasize public accountability by calling for better evidence about what students learn, greater

¹ There are many definitions of these terms. For the purposes here, they refer to external quality review of higher education that typically involves self- and peer review culminating in judgments about both threshold quality and needed improvement.

transparency, and more information about the return on their investment in colleges and universities. As larger and larger numbers of students enrol in colleges and universities and as substantial tuition becomes a fact of life for more and more of these students, higher education is viewed as a consumer good, with a degree or credential or a job as essential outcomes for all students.

The emphasis on accountability is driven by several factors, all of which reinforce a pragmatic, utilitarian approach to higher education. They include an international economy that places emphasis on jobs requiring at least some post-secondary experience, the continued growth and dominance of technology, international competitiveness, national economies with limited funds for higher education and, in some countries, rising skepticism about the effectiveness of all social institutions, including higher education. For some countries, the growth of the for-profit higher education sector is a factor as well.

One major result of the emphasis on public accountability has been the development of new tools to judge quality, which are external to the academy. The public no longer needs to rely solely on the professionals and practices within higher education to judge its effectiveness.

Rankings are one of these new accountability tools – the most prominent and the most controversial. ‘Rankings’ refer to a hierarchical ordering and comparing of the performance, effectiveness and characteristics of higher education institutions based on specifically chosen indicators. The indicators may differ significantly and can include, for example, research, funding, endowment and student characteristics. They are the means by which, for instance, *US News and World Report* or the Shanghai Rankings, determine the rank at which institutions find themselves. More than fifty countries now use rankings, accompanied by ten international and some regional rankings. The number of ranking systems is likely to increase, expanding to larger numbers of countries and regions and, according to some experts, becoming a standard worldwide accountability tool. Ranking systems may be developed by government, by private bodies or the media.

Other external accountability tools have emerged as well, including online interactive data sets, qualifications frameworks, regional quality standards and international quality standards. Online, interactive data sets allow students or the public to align and compare various features of institutions such as graduation rates or retention. The European classification system, U-Map, is one example, featuring a multi-dimensional approach to such comparisons based on specific indicators such as student characteristics,

degree levels and research expenditures. The feasibility project for U-Map has just been completed. Another such system is the *College Navigator* provided by the US Department of Education. Prospective students can compare colleges and universities to learn more about the availability of federal student aid, enrolments, tuition, majors and admissions practices. A key feature of these systems is the opportunity for students or the public to develop an individualized data set to be used in making judgments about colleges and universities.

Qualifications frameworks serve to articulate expectations of what students are to learn, arrayed by levels of education. They can be developed for all education, from primary grades to graduate education, or for specific levels such as the baccalaureate. They can also be used to set common expectations across institutions for degrees, for example, what students who earn the baccalaureate are expected to know and do. Qualifications frameworks may function at a national, regional or international level. Approximately seventy countries have established such frameworks and a number of regional frameworks have been developed as well. Europe has established both a regional framework and national frameworks. Australia, Hong Kong, New Zealand and South Africa, as well as many European nations, have country-based frameworks.

International standards for student learning are the newest of the external accountability tools. The Organisation for Economic Co-operation and Development has been developing international indicators of student achievement, the Assessment of Higher Education Learning Outcomes, which may be a prototype for perhaps standardizing international judgment of what students learn and can do.

The challenge of the new tools

Rankings and the other accountability tools pose a significant challenge to traditional quality assurance and accreditation. Developed outside higher education, they are often viewed as a disruptive technology. They do not incorporate any of the fundamental features of the traditional approach: self-evaluation, peer review and predominantly qualitative judgment do not dominate. Given that their primary purpose is public accountability, they tend not focus on quality improvement. They build on the consumerist, utilitarian view of higher education described above.

As these tools shift judgment of academic quality away from higher education towards external actors, they serve purposes different from traditional quality assurance and accreditation. Where the tools are developed and implemented by government, they strengthen government oversight of higher education. They are also sometimes not consistent with efforts to develop an institutional 'culture of quality' that has been part of the international discussion of quality assurance for some time.

The United States and the new tools

In the United States, the development of new tools such as rankings, qualifications frameworks or interactive data sets has rested with the business community or government – not, as might be expected, with the eighty-five non-governmental institutional and programmatic accrediting organizations or higher education generally. US accreditation, focusing on both quality assurance and quality improvement, has a strong investment in the traditional and well-tested practices of peer review, qualitative and formative evaluation, and the exercise of professional judgment in determining academic quality. To date, this community has not chosen, for the most part, to make a major investment in the new tools as part of their commitment to professionals reviewing other professionals or academics reviewing other academics. They are free to make this choice, given the non-governmental status of accrediting organizations and the longstanding US tradition of governance of higher education as vested in boards of trustees of individual colleges and universities, not federal or state government.

While these tools have not been developed within accreditation and higher education, there is, nonetheless, considerable discussion and debate surrounding them. The Council for Higher Education Accreditation (CHEA), a non-governmental, national institutional membership organization of 3,000 degree-granting colleges and universities, has worked over the past several years to bring US colleagues together with academics from a range of other countries to explore the new accountability tools and the work of quality assurance in other countries. Accrediting organizations themselves have been part of many international discussions with regard to, for example, rankings and qualifications frameworks.

That these tools are emerging from the business or governmental sector is not, however, discouraging to the public that is using them with increasing

frequency to make judgments about the quality of higher education and making key decisions such as what college or university to attend. Rankings in particular are popular and available through a number of commercial enterprises including *US News and World Report*, *Barron's*, and *The Princeton Review*. Federal and state governments are part of the development of the new tools, along with private foundations. At present, this interest focuses on qualifications frameworks such as the Lumina Foundation's *Degree Qualifications Profile* and interactive datasets that provide for user-driven comparability such as the *College Navigator* on the US Department of Education website mentioned above and the Education Trust's *College Results Online*.

The new tools and traditional quality assurance

What should professionals engaged in quality assurance and accreditation do about the accountability tools? Should they ignore the new tools? Make some accommodation in response to the calls for greater accountability and the new tools and, if so, how? Attempt to dominate the new tools? Allow the new tools to replace traditional quality assurance?

Some within quality assurance, accreditation and higher education have chosen to ignore the new accountability tools, seeing them as inadequate measures of academic quality and raising serious questions about the methodologies employed in, for example, the various rankings that are available. These people continue to advocate for traditional quality assurance as the preferred means to judge higher education. They see preservation of quality improvement and formative evaluation as essential. They are eager to maintain the traditional academic leadership role of colleges and universities, in contrast to a stronger role for external actors.

Others have opted for more of an adaptive role for accreditation and quality assurance. They acknowledge that the calls for public accountability – evidence of student learning and greater transparency both for institutions and quality assurance – require a robust response in today's world. A key question here is whether to accommodate the new tools or to address public accountability through traditional processes augmented by, for example, greater transparency and additional attention to student learning. At the same time, a strong commitment to the desirable elements of the traditional

quality assurance model calling for peer review and professional judgment needs to be maintained.

Yet others working in higher education have engaged with the tools, seeing them as useful additions to traditional practice. For example, in the United States, the Lumina Foundation's *Degree Qualifications Profile*, mentioned above, is a framework to develop and judge expectations of what students are learning at the baccalaureate, masters and doctoral levels. The *Profile* has attracted some accrediting organizations, associations and institutions that are piloting its application to address student learning and accountability. Europe, as indicated above, has developed both regional and national frameworks, as have a number of other countries. These frameworks are addressed either as part of ongoing quality assurance practice or in tandem with traditional efforts. Governments often prescribe them.

Those interested in some alignment between traditional quality assurance and the new accountability tools also talk about carefully distinguishing the tasks that are to be accomplished through these different practices and tools. The European Association for Quality Assurance in Higher Education (ENQA) has initiated a discussion about differentiating tools based on specific purposes that tools are intended to serve. The same approach may not be effective to judge quality, assure accountability and encourage improvement. We may need separate tools for these various purposes. Perhaps, for example, traditional quality assurance is best when focused on improvement and the new tools are more appropriate when addressing accountability.

For some critics, especially outside higher education, there is interest in dismantling traditional quality assurance entirely and replacing these traditional practices with the new accountability tools, especially if government backs the tools. In the United States, one hears that *US News and World Report* is the *de facto* judge of the quality of higher education, not accreditation. There is considerable emphasis on government-driven requirements for additional transparency and evidence of student learning.

Summary

The likelihood of these external accountability tools, especially rankings, disappearing is low. There is much that the public now wants to routinely know about higher education as compared to the past. Society now believes that it

should have significant information about what colleges and universities are doing; how teaching, learning and research are carried out; what we mean when we use the term 'quality' and, above all, how well we are performing.

In addition, these tools are quickly becoming essential to the increasing internationalization of higher education. International rankings allow for judgments of institutions across borders. Qualifications frameworks can be used to align expectations with regard to degrees for entire geographic regions. International data sets can provide comparisons not only within countries, but also across countries. The work on international student learning outcomes indicators is intended to be applicable around the globe. For some, higher education is the last unregulated global industry – and the new accountability tools provide what is considered to be the needed regulatory framework.

Whatever the response to the new accountability tools and their implications for traditional quality assurance and accreditation, future conversations will centre on the role of traditional practices and these tools:

- What counts as appropriate accountability – responsiveness to the public about student learning and institutional performance?
- What are various ways in which traditional quality assurance and new accountability tools may be aligned to enhance service to students and society?
- What is needed to sustain the value of formative evaluation through peer review and its emphasis on quality improvement?
- How do we preserve the unique and highly successful academic leadership role for individual colleges and universities?

The new accountability tools have already had a profound impact on higher education. Their impact will continue to be felt as these conversations take place and lead to additional change within colleges and universities.

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Part 3

International Perspectives

Chapter 8

An African perspective on rankings in higher education

Peter A. Okebukola

Introduction

The African higher education system has grown significantly over the past twenty years in response to demand for admission spaces by secondary school leavers. From about 700 universities, polytechnics, colleges of education and other post-secondary institutions classified within the higher education group in the early 1990s, the system now has well over 2,300 of such institutions. The growth of the system with respect to enrolment is judged to be one of the fastest in the world (UIS, 2010).

This impressive performance on access has failed to be matched by improvement in quality (Materu, 2007; Okebukola and Shabani, 2007; World Bank, 2008). As a way of clustering the good from the bad, stakeholders, especially potential students, employers and parents, have turned to the ranking of these institutions to provide a basis for selection. The first ports of call are typically global ranking league tables such as Webometrics, *Times Higher Education (THE)* and the World University Rankings and Academic Ranking of World Universities (ARWU), commonly called the Shanghai Ranking (Salmi, 2011). These rankings are regularly updated and readily available in the public domain, hence individuals or groups desiring relative standing of their national institutions find them to be an easily accessible resource. Unfortunately, these global ranking schemes provide little help for the locals, especially potential undergraduates, since over 90 per cent of the higher education institutions in Africa are not captured in the top leagues (Salmi and Soroyan, 2007). A sprinkling of universities in Africa shows up in the top 500 of all global league tables. For instance, in the 2010 ARWU only three universities, all from South Africa, were listed in the world's top 500 and only two in the 2011–2012 *THE* best 400. Even when regional and national tables are extracted from the global data set, many institutions at the national level are not ranked. This presents a need for national and African regional schemes to fill this void. This chapter presents an example of a national (ranking) and a regional (rating) system developing in response to this need.

Since the 1960s, ranking of universities in Africa has been conjectural rather than empirical. Two indicators have typically featured. These are the age of the institution and employers' perceptions of the quality of graduates. As reported by Taiwo (1981), in the minds of Kenyans, the University of Nairobi (established 1956) should be better in quality of training than Kenyatta University (established in 1965). The same order of ranking emerges when employers rank these universities on the assumption that graduates of University of Nairobi should be better than graduates of other universities in Kenya. Nairobi graduates may have been tried and tested and adjudged

good in quality, which may colour and sustain their perception over time. In Nigeria the University of Ibadan, established in 1948, is generally perceived to be better than other universities established after it. Regionally, there has been a pervasive perception that the ‘first generation’, post-colonial universities such as Makerere (1922), Ibadan (1948) and Legon (1948) are better than those established after them. While there are complex variables implicated in the perceived high ranking of these institutions, such as the quality of facilities and staff, strict compliance with standards to match top-rate universities in Europe, quality of leadership, as well as quality and quantity of students, the rankings were not based on verifiable data.

From early 2000, conjectural ranking began to yield for the empirical. Global rankings provided a template for more transparent and more objective data collection, analysis and reporting. They also provided a menu of indicators that can be adapted or adopted for local context. The first *Times Higher Education* ranking in 2004, which showed the big names in the higher education system in Africa by the conjectural ranking not listed in the Times league tables, jolted stakeholders. Governments, university managers, students and parents reacted angrily. The call to improve quality and hence global ranking was thick in the air. This call has persisted and has been a major driver for improving the delivery of higher education in the region. The next section of this chapter presents a national example of ranking of higher education institutions, while the section that follows this describes a regional rating scheme. The concluding section positions Africa within a global context and suggests ways by which African universities can achieve better ranking on global league tables.

A national example: the Nigerian experience

In September 2001, Nigeria, through the National Universities Commission (NUC), initiated steps towards a national ranking of its universities. There were three major drivers for this effort. The first was a desire among the population to know more about the relative standing (performance) of the universities and their programmes in order to guide career choices by prospective students. Second, the government wanted a transparent and objective mechanism for identifying centres of excellence that could benefit from preferential funding. Third, the NUC, whose mandate includes the orderly development of universities, needed a basis for advising government on programmes and universities

that should be strengthened to address projected human resource needs of the country. Coincidentally, consultations on a World Bank facility for improving the Nigerian university system was about to be concluded and the league table of universities and programmes was to be a key factor in implementing the project. Taken together, the atmosphere was ripe for a university-ranking scheme. The national programme accreditation exercise of 2000 provided data derived through an objective and transparent methodology for drawing up the league tables. Since 2001, annual university rankings by programmes and institutions have been conducted. By 2004 and 2005, additional indicators were included in the data to align the national ranking with three global ranking schemes: ARWU, *THE*, and Webometrics (Okebukola, 2006; 2010).

The ranking indicators were:

1. *Percentage of academic programmes of the university with full accreditation status*: This indicator measures the overall academic standing of the university. It is computed by dividing the number of academic programmes of the university with full accreditation status by the total number of programmes offered by the university and expressing this as a percentage. It will be recalled that the first two ranking exercises of Nigerian universities used only programme accreditation data.
2. *Compliance with carrying capacity (measured by the degree of deviation from carrying capacity)*: This indicator measures how well enrolment of the university matches available human and material resources. Universities that over-enrol (exceed carrying capacity) are penalized on this measure. It is computed as:

$$\frac{\text{Deviation from carrying capacity} \times 100\%}{\text{Carrying Capacity}}$$

3. *Proportion of the academic staff of the university at professorial level*: This indicator is an assessment of the quality of academic staff in the university. The full professorial category is selected as it constitutes the zenith of academic staff quality in a university. It is calculated by dividing the number of full professors in the university by the total number of academic staff and expressing this as a percentage.
4. *Foreign content (staff): proportion of the Academic staff of the university who are non-Nigerians*: This indicator is designed to measure how well the university is able to attract expatriate staff. The indicator is important in a globalizing world and within the context of a university being an

institution with a universal framework of operations. It is computed by dividing the number of non-Nigerian teaching staff by the total number of academic staff in the university and expressing this as a percentage.

5. *Foreign content (students): proportion of the students of the university who are non-Nigerians:* This indicator measures how well the university is able to attract foreign students. As stated for the staff component, the indicator is important in a globalizing world and within the context of a university being a universal institution where students from all over the world are free to enrol. It is derived as the percentage of the quotient obtained by dividing the number of non-Nigerian students in the university by the total number of students.
6. *Proportion of staff of the university with outstanding academic achievements:* These achievements include Nobel Prize winners, National Merit Awardees and Fellows of Academies (e.g. Academy of science, Academy of Letters, Academy of Education and Academy of the Social Sciences). The indicator gives the standing of the staff of the university when normed with colleagues at national and international levels. Further, it measures how well the university is able to stimulate and retain quality staff. It is computed by dividing the number of staff with such academic achievements by the total number of academic staff and expressing the quotient as a percentage.
7. *Internally generated revenue:* This measures the ability of the university to generate funds from non-governmental/proprietor sources. It is derived as the amount of revenue generated internally divide by the total revenue of the university x 100.
8. *Research output:* A very important measure of the esteem and relevance of a university, this indicator provides information on how well the staff of the university are able to contribute to knowledge through research. Only research published through international outlets and indexed in acclaimed abstracts and indexes are to be counted. For the 2004 ranking, only books and journal articles that are published in outlets with editorial offices in Australia, Europe, India, Japan, New Zealand and North America will be accepted. Nigerian publications with proof of abstracting or indexing in world-renowned abstracting and indexing services will be accepted. This measure is computed as the total number of such publications contributed by staff of the university in 2004 up to a maximum of 100. Proofs of the publications are to be submitted at the time of filing data for the university.

9. *Student completion rate*: A measure of the internal efficiency of the university, student completion rate in 2004 is calculated by dividing the number of students of the university who graduated in 2004 (for the cohort that enrolled in 1999/2000) by the total number of students in the graduating class in 2004. The quotient is expressed as a percentage.
10. *Ph.D. graduate output for the year*: This indicator combines the postgraduate standing of a university with the internal efficiency of postgraduate education. It is computed by dividing the number of PhDs graduated in 2004 by the total number of postgraduate students in that year and multiplying by 100.
11. *Stability of university calendar*: It is in an atmosphere of peace and stability that good quality teaching, learning and research can prevail. When the university calendar is stable, foreign staff can fit the schedule of their parent university to a target local university and be able to offer services including contributions to research. In addition, stability guarantees local staff a long vacation period that can be used to engage in research activities in a target foreign university. Exciting vacation courses for students can be run during such periods. This indicator is computed as follows:

$$\frac{12 - \text{No. of months of closure} \times 100}{12 \text{ months}}$$

12. *Student to PC Ratio*: In an ICT-enabled higher education world, the student-to-PC ratio becomes important. This indicator is computed as:

$$\frac{\text{Total no. of computers available to students} \times 1,000}{\text{Total number of students}}$$

Computers available to students in commercial internet cafes are not counted.

By 2009, the NUC indicated its intention to revise the indicators for ranking as shown in Table 1 (Okebukola, 2010).

Table 1. Proposed NUC ranking indicators

Common	
1	Academic peer review
2	Employer review
3	Faculty/student ratio
4	Citations per faculty
5	Retention: six-year graduation rate and first-year student retention rate
6	Graduation rate performance: difference between expected and actual graduation rate
7	Proportion of international staff
8	Proportion of international students
9	Web impact factor
10	Alumni holding a post of chief executive officer or equivalent in one of the 500 leading international companies
Unique	
1	Percentage of academic programmes of the university with full accreditation status
2	Proportion of academic staff of the university at full professorial level

Regional effort: the African Quality Rating Mechanism

The African Quality Rating Mechanism (AQR^M) was instituted to ensure that the performance of higher education institutions in Africa are comparable against a set of criteria that takes into account the unique context and challenges of higher education delivery on the continent. Higher education has been identified as a major area of focus in the African Union (AU) Plan of Action for the Second Decade of Education for Africa (2006-2015), with quality as an area essential for revitalization of higher education in the region. The AU Commission has developed a framework for Harmonization of Higher Education Programmes in Africa, with the specific purpose of establishing harmonized higher education systems across Africa, while strengthening the capacity of higher education institutions to meet the many tertiary education needs of African countries (AUC, 2008; Oyewole, 2010). This occurs mainly through innovative forms of collaboration and ensuring that the quality of higher education is systematically improved against common, agreed benchmarks of excellence that facilitate the mobility of graduates and of academics across the continent. In connection with this, the AQR^M is also envisioned to enhance higher education institutions’ effective delivery of programmes across the continent and to allow for a more objective measure of their performance.

AQRM uses clusters of eleven indicators (standards) at the institutional and programme levels summarized in Table 2 and presented in detail in the Appendix.

Table 2. AQRM standards/clusters of indicators

Standard	No. of rating items
1 Institutional governance and management	9
2 Infrastructure	8
3 Finance	7
4 Teaching and learning	8
5 Research, publications and innovations	8
6 Community/societal engagement	8
7 Programme planning and management	8
8 Curriculum development	7
9 Teaching and learning (in relation to curriculum)	7
10 Assessment	6
11 Programme results	4

The AQRM was piloted in 2010 in institutions that fall within Regional Economic Communities (RECs). An AQRM survey questionnaire, an eighty-item instrument with fifteen parts, was used for collecting data. Items in parts 1 to 13 cover demographic features of institutions and detailed data on students, staff, facilities and processes. Part 14 is in two parts, the first of which requires self-rating of faculty/college characteristics such as management, infrastructure, recruitment, admission and selection, research output, learning materials, curriculum and assessment. The second requires that the programmes of the institution be ranked from first to fifth. Part 15 is the institutional self-rating. The entire institution is to be rated on a three-point scale covering excellent performance, satisfactory performance and unsatisfactory performance on the eleven clusters of standards.

Each of the thirty-four participating institutions conducted a self-assessment on the items that constitute the eleven standards. The average performance was then rated on a three-point scale (unsatisfactory performance=1; satisfactory performance=2; excellent performance=3). The results of this are yet to be released. It is unclear if the AU will take AQRM beyond the pilot stage, but hopes are high in Africa and the rest of the world that AQRM will evolve into a respectable international rating scheme.

AQRM versus major global ranking schemes

There are a number of convergences and divergences in the intention, methodology and reporting of AQRM and the three global rankings selected for comparative review in this paper: ARWU, *THE* and Webometrics. A key goal of the AQRM is the fostering of quality in higher education institutions in Africa. This is congruent with the implied goal of global world rankings, which is the heightening of the quest for quality through competition. The Plan of Action of the African Union Second Decade of Education envisions that with AQRM in place, African higher education institutions will begin to march forward in improving their performance on the thirteen indicators. Such improvements are expected to translate into overall quality improvement of their institutions.

Congruence between AQRM and three global rankings can also be seen in the indicators. Four of the clusters of indicators that are common to the three global rankings feature directly or indirectly in AQRM. These are research and publications, teaching and learning, infrastructure and community/social engagement. The other two – governance and management, and finances – are not directly measured by the global rankings. The programme-level criteria of AQRM do not directly match the indicator clusters of ARWU, *THE* and Webometrics, except of course for teaching and learning, which is indirectly related. It is safe to assume, therefore, that the measures on AQRM are proximal to the measures on the three global ranking schemes. It can be predicted that a well-performing institution on AQRM will have a respectable rank on global league tables if a rigorous verification process is applied to the AQRM methodology.

In spite of this similarity in indicators, the nature of the measurements is different. AQRM is mainly criterion-referenced. An institution does not assess itself against others, but against a set of criteria. As an example, in applying AQRM, the University of Cape Town in South Africa assesses itself on the criterion of governance and management and comes to a judgement as to whether it rates its own performance as excellent, satisfactory or unsatisfactory. The University of Cape Town has no data to make a comparison with the University of Lagos in Nigeria to rank itself higher or lower than the University of Lagos on this measure. In this self-assessment mode, it is assumed that the university will be truthful to itself and provide an honest and verifiable score on the different AQRM indicators. Conversely, the global rankings are largely norm-referenced, comparing performance of one university to the others.

AQRM requires institutions to develop an improvement plan following the assessment process. This aspect of the methodology of AQRM is not a feature of global ranking schemes, whose main intention is to publish league tables and expect users to make whatever use of them they deem fit. AQRM, however, requires performance improvement over a specified time based on the self-assessment scores. It is expected that AQRM will be complemented by strong internal quality assurance mechanisms to monitor the implementation of the improvement plan.

Perception and effects of ranking

It is difficult to provide an Africa-wide view of the perceptions of stakeholders on ranking of higher education institutions without a regional survey on the subject. However, three data sources permit a fair view on the subject. One of these is the study by the African Union reported by Oyewole (2010) in which subjects especially from the university community were surveyed across Africa. The other is the Nigerian study by Okebukola (2006) and a recent regional survey of newspaper reports on university rankings reported in Okebukola (2011).

Overall, these studies show tremendous enthusiasm by the general public for the 'rot in the higher education system to be exposed' as a result of the enduring poor performance in the global league tables and a 'firm basis for improved funding for the universities'. As findings in Okebukola (2006) and Okebukola (2011) show, labour employers were quite excited about the ranking, as they seek ways of selecting graduates from the best-ranked schools in the midst of the graduate glut. Parents and potential students found ranking helpful in the selection of institutions and were quite happy to turn to league tables showing universities with very good rankings in the programmes desired for study.

Perhaps the group that is divergent in its perception of ranking is higher education managers and teachers. While some who appear favoured by good placement on ranking tables felt comfortable with ranking, others who are not so favoured have harsh words for ranking. Yet there is a third group made up predominantly of staff unions that use ranking results to back up requests for improvement in working conditions.

Some details of the Nigerian survey showed that over 68 per cent of students seeking admission into Nigerian universities between 2003 and 2006 and

84 per cent of their parents were guided in the selection of their courses by the NUC rankings, published in newspapers. This, of course, is after the variables of proximity of the institution to the home and type of university would have been considered. About 76 per cent of labour employers surveyed combined the national ranking with global league tables in shortlisting applicants for employment interviews. About 69 per cent of vice-chancellors made reference to the ranking of their universities or their programmes in their annual reports and convocation speeches.

The effect of ranking has been largely positive. A striking effect is the improvement in funding to universities to improve facilities for teaching, learning and research. In Nigeria, this increase is over 30 per cent over a ten-year period. In Africa, national quality assurance agencies have increased in number from ten in 2003 to twenty-two in 2012 in response among other things to the desire to improve quality and hence bolster global ranking or regional rating. The third effect is the slow but steady increase in the quality of delivery of higher education in the region. While this improvement cannot be adduced solely to ranking, it is obvious that the competition induced by ranking is spurring efforts at improving quality.

It is instructive to examine the issue of rankings, education policies and resource allocation. The overarching goal of any education policy is to foster learning, which will ensure that national goals and objectives are met. Beyond this broad statement, there are several determinants of education policy of which ranking could be a minuscule element. Yet it can also be played up to a mega level depending on the pervading needs of the society. The parameters for deciding education policies include national philosophy, socio-cultural, economic and political contexts, and the desire to remain competitive in a globalized world. Such policies have general and specific variants. General policies provide the framework for steering the national agenda, while specific variants within this general framework target sub-systems to guide institutional goals. The location of ranking as a stimulus for setting education policy cannot be universally determined as the interplay of national idiosyncrasies in terms of what gets priority in setting the education agenda.

Ranking can be a strong determinant of educational policy insofar as the goal is to engender competition and act as a catalyst for improvements in quality. The theory of competition on which ranking rests implies that competing elements strive to improve in order to be the leader in the field. Thus, if the system-wide or institutional goal is to stimulate improvement in quality, ranking comes in as one of several pathways.

In Nigeria, the National Policy on Education (Federal Government of Nigeria, 2006) aims for an egalitarian society where education plays a pivotal role. It calls for ‘supporting education institutions to make them internationally competitive’. One of the strands of the spirit of this ‘international competitiveness’ is ranking, where institutions and their programmes are compared among themselves at the national and global level and, as a consequence, improve their delivery with international standards in mind. Such national policies are shaped by public opinion, which in the last ten years has swayed in the direction of demanding that educational institutions in Nigeria, especially universities, improve their standing in global league tables. Institutions are responding by enacting policies that will lead to improvement in their teaching and research activities aligned to the indicators in the national and global ranking schemes. For instance, the University of Ilorin, the best Nigerian ranked institution on the 2010 Webometrics table, has been driven by a 2007 institutional policy of improving the research and publications activities of its staff. The University of Benin and the Obafemi Awolowo University, which had respectable rankings from 2006 to 2008 but slipped thereafter, also took steps through institutional policy enactments to bolster their research standing to be elevated in global league tables. In sum, the decision to use ranking to shape education policies is taken based on local circumstances, with national and institutional visions often serving as a guide.

One of the major influencing factors for education policies is the national vision. In 2009, Nigeria signed on to Vision 20-2020 with the aspiration to be one of the twenty leading world economies by 2020. Botswana, Ghana, Kenya, Lesotho, Namibia and South Africa are other examples where national visions are set to guide development. The common thread through these national vision statements is ranking – as the thrust to emerge among top-ranked economies by a set target date. Consequently, education policies deriving from these visions look to another form of ranking – of universities.

National and institutional desire to elevate standing on league tables will be realized through financial allocation mechanisms in one of two directions: lower ranked institutions can be financially supported to improve their delivery process, whereas higher ranked institutions are financially supported to evolve into centres of excellence.

Achieving respectable ranking on existing global ranking schemes

In spite of the development of AQRM, African higher education institutions will remain on the radar for data collection and ranking by other global ranking schemes. Indeed, most heads of higher education institutions attending a September 2011 event on quality assurance in Bamako would want to cite their rankings on such global league tables as the Webometrics, *Times Higher Education* and Academic Ranking of World Universities as a measure of their global, rather than regional, ranking/rating. Some expressed preference for renaming the Quality Rating Mechanism without the 'African' to convey the universality of the application of the rating system. While it is apparent that such higher education managers are unaware of the philosophy and usability of AQRM, it is clear that in the spirit of inclusivity, African higher education institutions should continue to strive to attain respectable ranking on global ranking schemes.

As stated earlier, this chapter looks at three of the major global ranking schemes: the Academic Ranking of World Universities (ARWU), *Times Higher Education* ranking and Webometrics ranking. The Academic Ranking of World Universities focuses on academic or research performance (Liu, 2011). Ranking indicators include alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers in twenty-one broad subject categories, articles published in *Nature* and *Science*, articles indexed in Science Citation Index-Expanded and Social Science Citation Index, and academic performance with respect to the size of an institution.

The *Times Higher Education*–QS World University Rankings employ thirteen performance indicators designed to capture the full range of university activities, from teaching to research to knowledge transfer. These thirteen elements are brought together under five headline categories: *Teaching* – the learning environment (worth 30 per cent of the overall ranking score); *Research* – volume, income and reputation (worth 30 per cent); *Citations* – research influence (worth 32.5 per cent); *Industry income* – innovation (worth 2.5 per cent); and *International mix* – staff and students (worth 5 per cent).

The Webometrics Ranking of World Universities applies four indicators obtained from the quantitative results provided by the main search engines:

1. *Size*: refers to the number of pages recovered from four engines (Google, Yahoo!, Live Search and Exalead).

2. *Visibility*: refers to the total number of unique external links received (inlinks) by a site, which can be only confidently obtained from Yahoo Search, Live Search and Exalead.
3. *Rich files*: after evaluation of their relevance to academic and publication activities and considering the volume of the different file formats, the following are selected: Adobe Acrobat (.pdf), Adobe PostScript (.ps), Microsoft Word (.doc) and Microsoft PowerPoint (.ppt); these data are extracted using Google, Yahoo! Search, Live Search and Exalead.
4. *Scholar*: 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.

One of the stiffest indicators for African universities on the ARWU scheme is alumni and staff winning Nobel Prizes and Fields Medals. The environment for conducting groundbreaking research is largely lacking, hence steps should be taken to elevate the facilities, especially research laboratories, to a level that will permit contributions with the potential to win a Nobel Prize. While facilities represent one side of the coin, the other side is the capacity of African researchers to undertake top-quality research and sustain this over time, as is often characteristic of Nobel-winning studies. Significant efforts should be invested in capacity building of researchers and fostering partnerships with renowned researchers outside Africa. Tutelage under Nobel Prize winners is another pathway. Training graduates from African higher education institutions under the wings of Nobel Prize winners will foster cultivation of the research methodologies, attitudes and values needed to be a prize winner. The Association of African Universities (AAU) and national quality assurance agencies need to undertake a study of the institutional location of Nobel prizewinners and seek partnership with such institutions and centres where the laureates are serving. Bright graduates, preferably first-class degree holders, can be carefully selected to undertake postgraduate education in such centres. We should begin to fade out the vogue of partnerships with little known universities and laser focus on one or two outstanding universities and programmes where Nobel Prize winners serve.

Another step which can add up to ultimately spawning Nobel laureates over a long-term period is to admit the best from the secondary school system. Admitting the cream of products from the secondary school system will enhance the chances of good quality graduates, who in turn will deploy their sharp intellects to win the Nobel Prize someday. There is

also the need to encourage scholars in African universities to target global problems. Many Nobel Prizes are won which address problems facing the entire human race rather than a subset of humanity. Vice-Chancellors should encourage their staff to think global while seeking research problems.

Researchers in African universities should be encouraged to network with their colleagues outside their countries and the Africa region. Since staff cannot nominate themselves for a Nobel Prize, they should make their work known to others. They should be encouraged and sponsored to attend conferences and write articles in newspapers and magazines to promote public understanding of their technical work. The more they make their work known, the better their chances of earning a nomination, especially if the work attracts the attention of a Nobel Prize nominator.

There is also a need to foster collaboration with American universities. Although the Nobel award is not country-subjective, it has been shown that working in a US laboratory statistically improves chances of winning the prize. Prior to 2006, the Nobel Foundation has honoured 758 individuals and 18 organizations and almost 300 of those recipients have been American or have worked in the United States. Vice-Chancellors may wish to be preferentially selective in favour of US universities while looking for academic and cultural exchanges. It should be stressed that this recommendation does not in any way limit a university's scope of such linkages.

How can African universities achieve high standing on cited research?

The proportion of highly cited African researchers is unimpressive translating into low scores on this indicator. To boost scores, there is need for research capacity-building. African scholars have the potential to be top-rate researchers and to contribute hugely to citable literature if their research skills are continually upgraded. This underscores the need for constant research capacity-building conducted at the level of the university and as a collective at the national level. While trusting the ability of local senior academics to lead such capacity-building efforts, injection of renowned and highly cited researchers from other countries will be a productive venture. The better model of research-capacity building is

programme/faculty based, the other being university-based. This demands that staff in the department receive training in their disciplines as a homogeneous unit. Commonalities in problem identification, research methodology, data gathering and analysis, and report writing are shared and form the basis of such training.

The list of journals indexed in databases should be communicated to all staff. Some staff are unaware of which journals are indexed in Science Citation and Social Science Citation indexes. The university librarian should extract the list relevant to each department/faculty and forward to heads of department and deans of faculty for wide dissemination to their staff. Since this list is also available on the Web, staff should be informed of the site to visit to extract the list relevant to their discipline and area of research. Staff should then be encouraged to consider such journals as first choice when seeking publication outlets for their research. Incentives should be given to staff whose publications appear in journals indexed in Science Citation and Social Science Citation indexes including financial rewards for every article published, as practised by Covenant University, Nigeria, as well as financial support for further research. Research mentoring by senior colleagues who are active in research should be encouraged by vice-chancellors.

Teacher/student ratio is one of the indicators in the *THE* ranking. It is assumed, for instance, that staff/student ratio will tell a story on the quality of teaching insofar as classes are small or of the right size, and with commensurate staff strength teaching is expected to be of good quality. The hurdle to scale on teacher/student ratio is low since many universities in countries in Africa with well-established quality assurance agencies have endeavoured to keep within prescribed teacher/student ratio minimum standards for most programmes, in order to stay on the side of full accreditation. The professional bodies for medicine, engineering and law also keep teacher/student ratios in check through enforcement of their respective minimum standards on enrolment. It is important to stress the danger to which some universities in francophone countries, such as Mali, are exposed over gross over-enrolment in programmes in the social sciences. The reverse is largely true for many private universities, where subscription level by students is still generally low. In sum, the first thing to do is to keep teacher/student ratios well reined in within minimum standards.

Institutional income scaled against academic staff numbers is assumed to give a broad sense of the general infrastructure and facilities available to

students and staff. The overall picture in the African university system is grim. Most state and private universities are in dire financial straits and inability to meet financial needs is a recurring theme. Low institutional income translates in the view of the *THE* ranking scheme to inability to provide adequate resources for teaching and learning, hence the indicator of institutional income is taken as proxy for teaching.

The final category of *THE* ranking looks at diversity on campus – a sign of how global an institution is in its outlook. The ability of a university to attract the very best staff from across the world is key to its global success. *Times Higher Education* assigns a 60 per cent weighting to the ratio of international to domestic staff, making up 3 per cent of the overall score. The market for academic and administrative jobs is international in scope, and this indicator suggests global competitiveness. The other indicator in this category is based on the ratio of international to domestic students. Again, this is a sign of an institution's global competitiveness and its commitment to globalization.

African higher education institutions can improve the scores on the diversity indicator through improvement in their salaries and work environments with the aim of attracting international staff. In a market-driven economy, attraction of international staff occurs towards where maximum benefit can be derived in terms of salary and other conditions of service. Salaries of university staff should be made internationally competitive. Work environments including facilities for quality teaching and research should be significantly improved. Special accommodation facilities should be provided with due attention paid to security and regular supply of water and electricity.

There is also a need to improve hostel conditions to attract international students. Hostel facilities in many universities are not conducive for foreign students, especially those from Europe and North America. Implementation of a national 'Operation Fix the Hostels' is planned, so that by 2013 most of the hostels are in better shape for habitation by foreign students with the issue of security guaranteed. Vice-chancellors should attend marketing fairs to countries in Africa and other parts of the world to publicize their universities and their programmes to potential foreign students.

Webometrics ranking has some special demands (Aguillo 2008; 2010). Isidro Aguillo, head of the Webometrics laboratory offers the following tips, which can be shared among African universities:

- *URL naming*: Each institution should choose a unique institutional domain that can be used by all the websites of the institution. It is very important to avoid changing the institutional domain as it can generate confusion and has a devastating effect on visibility values. Alternative or mirror domains should be disregarded even when they redirect to the preferred one. Use of well-known acronyms is fine, but the institution should consider including descriptive words, like the name of the city, in the domain name.
- *Contents – create*: A large web presence is made possible only with the effort of a large group of authors. The best way to ensure this is to allow a large proportion of staff, researchers or graduate students to be potential authors. A distributed system of authoring can operate at several levels:
 - A central organization can be responsible for the design guidelines and institutional information.
 - Libraries, documentation centres and similar services can be responsible for large databases, including bibliographic ones but also large repositories (thesis, pre-prints and reports).
 - Individual persons or teams should maintain their own websites, enriching them with self-archiving practices.
 - Hosting external resources can be interesting for third parties and increase visibility: conference websites, software repositories, scientific societies and their publications, especially electronic journals.

Contents – convert: Important resources are available in non-electronic formats that can be easily converted to web pages. Most universities have a long record of activities that can be published in historical websites. Other resources are also candidates for conversion, including past activities reports or pictures collections.

Interlinking: The Web is a hypertextual corpus with links connecting pages. If your contents are not known (bad design, limited information or minority language), and the size is scarce or of low quality, the site probably will receive few links from other sites. Measuring and classifying the links from

others can be insightful. You should expect links from your 'natural' partners: institutions from your locality or region, web directories from similar organizations, portals covering your topics, colleagues or partners personal pages. Your pages should make an impact in your common language community. Check for orphaned pages (i.e. pages not linked from another).

Language, especially English: The Web audience is truly global, so you should not think locally. Language versions, especially in English, are mandatory not only for the main pages, but also for selected sections and especially for scientific documents.

Rich and media files: Although html is the standard format of webpages, sometimes it is better to use rich file formats like Adobe Acrobat pdf or MS Word doc, as they allow a better distribution of documents. PostScript is a popular format in certain areas (physics, engineering, mathematics), but it can be difficult to open, so it is recommended to provide an alternative version in pdf format.

Bandwidth is growing exponentially, so it is a good investment to archive all media materials produced in web repositories. Collections of videos, interviews, presentations, animated graphs and even digital pictures could be very useful in the long term.

Search engine-friendly designs: Avoid cumbersome navigation menus based on Flash, Java or JavaScript that can block robot access. Deep-nested directories or complex interlinking can block robots too. Databases and even highly dynamic pages can be invisible to some search engines, so use directories or static pages instead, or as an option.

Popularity and statistics: Number of visits is important, but it is just as important to monitor origin, distribution and reason for reaching your websites. Most current log analysers offer a great diversity of tables and graphs showing relevant demographic and geographic data, but make sure that there is an option to show referrers – the webpages from which the visit arrives – or the search term or phrase used if the visit came from a search engine. Most popular pages or directories are also relevant.

Archiving and persistence: It should be mandatory to maintain a copy of old or outdated material in the site. Sometimes relevant information is lost when the site is redesigned or simply updated and there is no way to easily recover the vanished pages.

Standards for enriching sites: The use of meaningful titles and descriptive metatags can increase the visibility of pages. There are some standards like Dublin Core, which can be used to add authoring info, keywords and other data about the websites.

Conclusion

This chapter reviewed developments in higher education ranking in Africa with a special focus on Nigeria and the African Quality Rating Mechanism (AQRM). It examined the potential impact of ranking on improving the quality of delivery of university education. It highlighted the efforts made for a regional rating of higher education institutions. Some suggestions are provided on how African higher education institutions can take steps to improve their ranking on global league tables.

The Africa regional effort at rating of higher education institutions through AQRM is poised to become a potent mechanism for fostering quality. There is an ongoing effort at strengthening the African Higher Education and Research Space (AHERS), where AQRM will play a role. AHERS is the vista of opportunity for members of the higher education community in Africa to seamlessly interact among themselves in the quest to fulfil their teaching, research and service functions. The emphasis on research within the 'space' underlines the accent placed on the congregation of African scholars to finding solutions through research to problems inhibiting Africa's development. AHERS is to permit unhindered collaboration among students and staff of higher education institutions in Africa, regardless of linguistic and other barriers.

In the early 1960s, opportunities existed for students and teachers to cross national boundaries within Africa to participate in teaching, learning and research. The University of Ibadan in Nigeria and the University of Ghana, both in West Africa, had active collaboration in teaching and research with universities in East and Central Africa. Between 1970 and 1984, there was a sizeable traffic of students from the University of Nairobi, the University of Tanzania and the University of Cameroun to the University of Ibadan, especially for postgraduate degrees. Teachers in these institutions collaborated actively in research. Universities in francophone Africa, especially in Cote d'Ivoire, Mali and Senegal, have a fairly long history of collaboration in teaching and research. These interactions did not exist within a formal regional

framework. The recent initiative by the Association for the Development of Education (ADEA) through its Working Group on Higher Education (WGHE) and the African Union Commission is to formalize a framework for these interactions at the regional level and to strengthen existing pockets of national and sub-regional 'spaces'.

Also worthy of mention in relation to rating of higher education institutions in Africa is the establishment of the Africa Regional Quality Assurance Framework (ARQAF). ARQAF is being designed to have three key elements: benchmark/minimum standards, a regional accreditation mechanism and the strengthening of institutional quality assurance. The basis of measurement in the quality assurance process is the degree of deviation from a set of minimum standards. This therefore implies that consensus should be reached on what the minimum standards should be for every academic programme and for the operations of the entire institution. Consensus needs to be built by relevant professional bodies and experts in various disciplines, the result of which will be the regional minimum standards and benchmarks. These will be the lodestone to guiding regional ratings/rankings.

Ranking of higher education institutions, especially universities in Africa, has had a ten-year history (Okebukola, 2011). Within the decade, methodologies have improved and the need to adapt to the African context has been stressed. The outlook is that many more national efforts will emerge in the coming years with the upwelling of numbers of national quality assurance agencies. Resistance to ranking will not totally disappear, but the queue behind the adherents will likely lengthen. Expectations are high that before the close of the next two decades, African higher education institutions will rise to the top of global league tables if the current quality improvement process is sustained.

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Institutional-level criteria

Governance and management

1. The institution has a clearly stated mission and values with specific goals and priorities.
2. The institution has specific strategies in place for monitoring achievement of institutional goals and identifying problem areas.
3. Clear accountability structures for responsible officers are in place.
4. Staff, students and external stakeholders, where appropriate, are represented on governance structures. Governance structures are representative in terms of gender.
5. The institution has developed quality assurance policies and procedures.
6. Appropriate mechanisms are in place to monitor staff in line with performance agreements with relevant authorities.
7. The institution has put a management information system in place to manage student and staff data, and to track student performance.
8. The institution has specific policies in place to ensure and support diversity of staff and students, in particular representation of women and people with disabilities.
9. The institution has a policy and standard procedures in place to ensure staff and student welfare.

Infrastructure

1. The institution has sufficient lecturing spaces to accommodate student numbers, taking the institutional mode of delivery into account.

2. The institution provides sufficient learning/studying space for students including access to electronic learning resources, as required for the institutional mode of delivery.
3. Academic and administrative staff have access to computer resources and the internet.
4. Students have access to computer resources and the internet at a level appropriate to the demands of the institutional mode of delivery.
5. The institution has sufficient laboratory facilities to accommodate students in science programmes, taking institutional mode of delivery into account.
6. Laboratory equipment is up to date and well maintained.
7. The institution invests in maintaining an up-to-date library to support academic learning and ensures that appropriate access mechanisms are available depending on the mode of delivery.
8. The institution makes provision for managing and maintaining utilities and ensuring that appropriate safety measures are in place.

Finances

1. The institution has access to sufficient financial resources to achieve its goals in line with its budget and student unit cost.
2. The institution has procedures in place to attract funding, including from industry and the corporate sector.
3. Clearly specified budgetary procedures are in place to ensure allocation of resources reflecting the vision, mission and goals of the institution.
4. Financial and budgetary procedures are known and adhered to by the institution.
5. The institution provides financial support to deserving students (institutional bursaries and/or scholarships).

Teaching and learning

1. The institution encourages and rewards teaching and learning innovation.
2. The institution has procedures in place to support induction to teaching, pedagogy, counseling and the upgrading of staff teaching and learning skills through continuing education and/or lifelong learning.
3. Students have sufficient opportunity to engage with staff members in small groups, individually or via electronic platforms.
4. Student–staff ratios and academic staff average workloads are in line with acceptable norms for the particular mode of delivery, and are such that the necessary student feedback can be provided.
5. The institution has policies/procedures in place to inform the development, implementation and assessment of programmes offered by the institution, and these policies take account of ways in which higher education can contribute to socio-economic development.
6. The institution has developed a policy or criteria for staff recruitment, deployment, development, succession planning and a system of mentorship and/or apprenticeship.
7. Student-support services, including academic support and required counselling services are provided, in line with the institutional mode of delivery.
8. The institution has mechanisms in place to support students to become independent learners, in line with the institutional mode of delivery.

Research, publications and innovation

1. The institution has a research policy and publications policy, strategy and agenda. The research policy includes a focus (among others) on research supporting African socio-economic development.

2. The institution has a policy and/or strategy on innovation, intellectual property ownership and technology foresight.
3. The institution has demonstrated success in attracting research grants from national or international sources and in partnership with industry.
4. The institution has procedures in place to support academic staff to develop and enhance their research skills, including collaborative research and publication.
5. Staff and students publish their research in accredited academic journals and apply for patents (where relevant).
6. Researchers are encouraged and supported to present their research at national and international conferences.
7. Researchers are encouraged and facilitated, using a research and development budget, to engage in research relevant to the resolution of African problems and the creation of economic and development opportunities.
8. The institution encourages and rewards research whose results are used by society.

Community/societal engagement

1. The institution has a policy and procedure in place to engage with the local community or society in general.
2. The institution encourages departments and staff to develop and implement strategies for community engagement.
3. Students are required to engage with communities through their academic work.
4. The institution has forged partnerships with other education sub-sectors to enhance the quality of education in the country and region.
5. The institution provides access to an increasingly diverse range of students, taking account of additional support needs.

6. The institution disseminates information on its community-engagement activities to the local community.
7. The institution offers relevant short courses to the community/ broader society based on identified needs and supporting identified economic opportunities.

Programme-level criteria

Programme planning and management

1. The programme is aligned with the overall institutional mission and vision.
2. The programme meets national accreditation criteria.
3. The institution allocates sufficient resources to support the programme.
4. There is a programme coordinator(s) responsible for managing and ensuring the quality of the programme.
5. The mode of delivery takes account of the needs and challenges of all targeted students.
6. Staff teaching on the programme has the appropriate type and level of qualification.
7. The programme is regularly subjected to internal and external review in a participatory manner to reflect developments in the area of study.
8. Programme planning includes a strategy for the use of technology in a manner appropriate to the programme, facilities available and target students.

Curriculum development

1. The curriculum clearly specifies target learners and learning outcomes/competencies for each module/course and for the programme as a whole.

2. The curriculum is regularly updated to take account of new knowledge and learning needs to support African development.
3. Modules/courses are coherently planned and provide a sequenced learning pathway for students towards attainment of a qualification.
4. The curriculum includes an appropriate balance of theoretical, practical and experiential knowledge and skills (where applicable), as well as core and elective areas.
5. The curriculum has been developed to maximize student career pathways, opportunities for articulation with other relevant qualifications, and employment prospects.
6. Curriculum development has been informed by thorough research and consultation with relevant stakeholders (for example, employers).
7. The curriculum reflects positive African values, gender sensitivity and the needs of society.

Teaching and learning

1. A clear strategy is in place to identify the learning materials needed to support programme delivery.
2. Learning materials have been clearly presented and include reference to the learning aims and outcomes, as well as an indication of study time.
3. The language level of the learning materials is appropriate for the targeted students.
4. The learning materials have been designed with the purpose of engaging students intellectually, ethically and practically.
5. The range of learning materials used in the programme are integrated and students are guided through their use.

6. Programme review procedures include materials review and improvement.
7. Innovative teaching and learning materials are provided for students.

Assessment

1. Clear information about mode of assessment is provided for all courses/modules making up the programme.
2. Assessment is used as an integral part of the teaching and learning process and seeks to ensure that students have mastered specific outcomes.
3. The level of challenge of assessments is appropriate to the specific programme and targeted students.
4. A variety of assessment methods are used in the programme.
5. Staff qualified in assessment have been identified and trained to provide competent assessment.

Programme results

1. Student progress is monitored throughout the programme and early warning is provided for students at risk.
2. Completion rates per cohort conform to established norms for the subject area and mode of delivery and strategies to increase completion rates are in place.
3. Quality student feedback is provided.
4. Expert peers and/or professional bodies review the relevance and quality of learning achieved by students.

Chapter 9

Rankings and information on Japanese universities

Akiyoshi Yonezawa

Introduction

As a country whose higher education is categorized as being based on a 'Confucian' model, (Marginson, Kaua and Sawir, 2011), or a typical country suffering from 'diploma disease' (Dore, 1997), Japan has a long history of paying enormous attention to university rankings. From the establishment of a modern higher education system in the latter half of the nineteenth century, the Japanese higher education system has had a hierarchical structure. After the Second World War, large Japanese enterprises developed a sophisticated career promotion system within companies through the emphasis of on-the-job training. Under these circumstances, new university graduates would commonly get recruited just after graduation, and rather than already possessing specific expertise knowledge and skills, would be expected to undergo further training after entering a company. By the end of 1970s, the brand name of a university from which a student graduated became a decisive factor for the career promotion of Japanese youth. Mock-examination services were developed and a selectivity score called *hensachi*, a standardized score that indicates the academic achievement of the admitted students, became widely available. This student selectivity score has been utilized as a prior indicator in all university rankings in Japan up to the present day.

However, by the end of the 1980s universities and academics had become more sensitive to their global positioning in research performance. Japanese universities had become fully involved in global competition in research, especially in the fields of science, technology, engineering and mathematics (STEM). Based on the strong economy and success in production technology at that time, Japan witnessed a ten-fold increase in the acceptance of international students, which went from 10,428 in 1983 to 109,508 in 2003. The change in position of the University of Tokyo (from 67th in 1988 to 43rd in 1998) in the *Gourman Report*, a US-based university ranking that started in 1967, was referred to in the Diet.¹ At the end of the 1990s, a Hong Kong-based magazine, *Asiaweek*, published university rankings in Asia. The attitudes towards this ranking varied among Japanese universities as well as among Asian universities. It was said that Chinese and Taiwanese universities once resisted collaborating with *Asiaweek*. The University of Tokyo also refused to be ranked, having recognized that university rankings did not express the exact value of university activities (Yonezawa, Nakatsui and Kobayashi, 2002). The majority of universities, especially those with a strong

1 The Committee of Education and Science, the House of Councillors, the National Diet, 25 April 2002: <http://kokkai.ndl.go.jp/SENTAKU/sangiin/154/0061/15404250061008a.html>

faculty in science and engineering, paid more attention to their position in international rankings.

Interest in university ranking in Japan occurs for two completely different reasons. The first is that a university ranking can influence a students' choice of university, especially at the undergraduate level. This is quite important because student selectivity acts as a major factor in student recruitment. The second is that a university ranking is considered to demonstrate a university's research capacity according to global standards. Having a high ranking can assist in attracting funds for research activities from the government, foundations and private enterprises, as well as attract talent from all over the world.

Based on its strong economy, Japan has enjoyed a relatively independent, higher education market, albeit one with a language barrier. Until recently, Japanese universities have relied on domestic income resources for both tuition fees and research funds. However, the shrinking student market, resulting from the decline of the youth population and the rapidly increasing level of regional and global competition in attracting research funds, is now changing the attitudes of Japanese universities towards both domestic and international university rankings. Building on earlier works (Yonezawa, Nakatsui and Kobayashi, 2002), this chapter introduces the recent development of university rankings in Japan and the changing perspectives of Japanese universities towards domestic and international university rankings. Particular attention is paid to the drastic increase in information on prospective universities and the integration of 'university rankings' into a variety of information sources.

University rankings and student choice

From the 1980s to the beginning of the 1990s, Japanese universities found themselves in high demand due to the government's control of total student numbers. Prior to the enrolment of the second generation of baby boomers in the latter half of the 1980s, the government loosened their control over the total student numbers. By the end of the twentieth century, many less prestigious, private universities became de facto open entry. Under this condition, students were given more freedom to choose universities based on the content of academic programmes and study life, rather than the single factor of student selectivity on the part of a university.

The general public also viewed this change in the relationship between universities and student, namely, from one-sided selection by the universities to a two-way, mutual choice between universities and students, in positive terms (Arai and Hashimoto, 2005). The various media started to provide information on universities more actively through a wide range of data and indicators. Kawaijuku, a leading company in educational service provision that mainly supports primary and secondary school students and graduates to prepare for entrance examinations for the universities and high schools, pointed out the emergence of a significant number of universities that did not select students (Taki, 2000). After that, Kawaijuku strengthened its original surveys and analyses on the academic programmes and study life of prospective universities, initially for the purpose of providing guidance to their students, and then to publish these results to promote university reforms.

Asahi Shimbun, a top newspaper company, started to publish an annual book called *Asahi University Rankings* in 1994 (See Appendix), which included approximately eighty indicators. *Asahi Shimbun* clarified its mission to widen the perspective on universities on behalf of students and their parents. The indicators utilized in *Asahi University Rankings* contain everything from academic performance in relation to publications and citations, to student life including information on opportunities for volunteer activities. *Asahi University Rankings* does not provide a comprehensive ranking as a policy, partly because of the already existing strong influence of the student selectivity score. However, it has succeeded in including a wide range of universities. Many universities can find themselves ranked on at least one indicator.

Asahi Shimbun has also tried to provide visual and detailed information on specific universities and academic fields in their book series entitled *AERA Mook*. For example, the *AERA Mook on the Tokyo Woman's Christian University* is a 130-page volume with various visual images containing interviews and portrayals of its faculty, students and alumni, from advanced academic contents to the contents of a student's lunchbox. In 2011, *Asahi Shimbun* implemented a survey to obtain detailed information from universities in collaboration with Kawaijuku, which also provides data on entrance examinations for Gakken, another publisher. Such collaboration among ranking bodies, media and information providers has been frequently found in the history of university rankings in Japan.

Recruit Ltd. has been another important player in the history of university rankings in Japan. The main task of this company has been to provide

information on job placement for its students. This company has developed into a comprehensive service provider for universities, schools and the labour market. Recruit Ltd. has published a journal entitled *College Management*, which provides information to university managers and administrators. To provide a more in-depth view of various universities, it implemented student satisfaction surveys with various indicators in 1997, 1999 and 2001. This survey was transformed into a student survey on their recognition of the 'brand power' of universities in 2003. Since then, Recruit Ltd. has published its rankings on universities' competitiveness in terms of developing brand image, based on high-school student surveys, every two years.

Yomiuri Shinbun, the largest newspaper company in Japan, has been implementing another type of university ranking entitled *Daigaku no Jitsuryoku* (*The Real Power of Universities*) (See Appendix) since 2008 (*Yomiuri Shimbun*, 2011). As a series of newspaper articles, *Yomiuri Shinbun* has published reports on the ongoing reforms at various types of universities in Japan and abroad. The development process of rankings paralleled this series of articles. *Yomiuri Shimbun's* rankings focus more on the quality of education provision, teaching improvement, curriculum design, and so on. They then published the data and rankings in combination with the articles on various types of universities.

The emergence of these rankings, combined with various quantitative and qualitative data and information, indicate that the efforts to improve educational quality began to have greater impact on student choice, in the context that many universities are almost open entry. *Yomiuri Shimbun's* ranking, in particular, has attracted the attention of universities and the general public by surveying and publishing the dropout rate of prospective universities. Historically, the dropout rate among Japanese universities has been quite low in general. However, open enrolment and the increased efforts in quality assurance led to the emergence of a certain number of universities whose dropout rates were relatively high. These universities were, in general, reluctant to reveal these statistics, since most of the parents tend to take for granted that almost all students, once enrolled, will graduate. At the same time, *Yomiuri Shimbun* also requires universities to share their data on remedial and first-year education, which became meaningful for determining the effectiveness of university education. Overall, the rankings by *Yomiuri Shimbun* not only represent the general public's view on universities, but also provide a provocative view in terms of insights into the quality of university education.

University rankings for research performance

For universities involved in international competition, world university rankings are a highly important tool through which international recognition can be obtained. In the case of Japan, the most internationally competitive aspect of higher education lies in research activities in the fields of natural science and engineering, as well as, needless to say, studies in Japanese society, culture and business. Among top universities in the fields of natural science and engineering, and to some degree in social sciences, it is becoming common for international students at the graduate school level to have the option of participating in study programmes in the English language. In other words, Japanese top research universities are inevitably involved in the globalized market of students and researchers.

In Japan, university presidents, especially top ones with long histories, tend to be appointed based on the voting results of the faculty. Thus, these presidents are recognized as the representatives for faculty members, the majority of which are from the fields of natural and medical sciences or engineering. At the same time, for the vice presidents in charge of research and international affairs, the ranking position is highly influential when it comes to attracting external resources, research collaboration and talented students from all over the world.

Japanese national (public) universities still rely heavily on the public budget of the national government in terms of their operational expenditures and basic research project funds, and external research funds from industries based in Japan. Therefore, it is crucial, especially for competitive national universities, to attract the attention of the government to secure investment in their academic activities. Universities have also strategically utilized world university rankings to attract attention from the government and domestic society. Tohoku University published its action plan in 2007 to reveal its ambition to be a 'world leading' university ranked among the top 30 in the world. Hitotsubashi University, a top national university in the field of economics, business studies and other social sciences, also places a great deal of emphasis on world rankings and attempted to carry out a benchmarking exercise with the London School of Economics and Political Sciences. Based on a survey implemented by Tohoku University in 2008, 47 per cent of national university managers responded that they referred to world university rankings as an indicator when managing their universities (Yonezawa, Akiba and Hirouchi, 2009). In reality, however, less

than 10 per cent of national universities are ranked among the top 200 in any world university rankings.

Private universities face more difficulty in being ranked, especially in rankings based on research performance. To date, only Keio University, which has a very strong school of medical sciences, and Waseda University, which has an internationally competitive school of natural sciences and engineering, have been ranked in a comprehensive ranking such as the QS ranking, which places a heavy emphasis on a reputation survey. At least in terms of selectivity by students, those two private universities are equally competitive with the top tier of national universities, with Waseda University attracting the largest number of international students among Japanese universities. Especially in the field of social sciences and applied sciences, these universities have also been successful in attracting high-level researchers, and feel the necessity to attract a highly talented, international faculty and students. In strengthening international exchange with other universities, private universities, including Waseda and Keio, have paid a great deal of attention to world university rankings.

At the same time, especially for university managers and staff with expertise knowledge in the fields of science and technology, the methodology utilized for current world rankings is apparently rough, incomplete and biased. Japanese university leaders and their staff have been ambiguous on the reliability and viability of world university rankings, and have continued to make an effort to request further improvement of the methodology. For example, when the indicator of reputation by employers was introduced in the QS rankings from 2005, Yoshihisa Murasawa, a specially appointed professor of the University of Tokyo, identified that only two employers responded to the QS and that the questionnaires were not distributed among Japanese companies (Kobayashi, 2007).

When *Times Higher Education* introduced a new ranking methodology in collaboration with Thompson Reuters in 2010, Japanese universities experienced a significant lowering of rank. Research University 11 (RU11), the consortium of top 11 national and private universities in Japan,² made a request to improve the ranking methodology, specifically pointing out that the newly indicated 'regional modification' that was originally aimed at 'fair

2 The RU11 member universities are nine national universities (Hokkaido University, Tohoku University, Tsukuba University, the University of Tokyo, Tokyo Institute of Technology, Nagoya University, Kyoto University, Osaka University, Kyushu University) and two private universities (Keio University and Waseda University).

treatment' towards universities in developing countries, worked negatively in regard to Japanese universities. Some of those requests have been factored into the methodological amendment to their ranking in 2011. As a result, the University of Tokyo regained its top position in Asia, while the position of Japanese universities, including the University of Tokyo, went down in rank along with other Asian universities. At the same time, *Times Higher Education* also released the ranking results based only on their reputation survey of 2011 in which the University of Tokyo was ranked eighth.

Researchers in the field of higher education also showed an interest in world university rankings – some as a tool for assessment (Kobayashi, Cao and Shi, 2007) and others as a social phenomenon (Yonezawa, Nakatsui and Kobayashi, 2002). Participation in progressive approaches has also occurred. The University of Tokyo, for example, decided to take part in the U-map project, the European benchmarking initiative. At the same time, Kobayashi (2011) stressed the effectiveness of benchmarking through institutional research activities, rather than merely to university ranking results.

Rankings on university finance

Another category of university rankings has developed; namely, rankings on university finance. Especially in the last decade, university finance has received substantial attention not only from university managers, but also from various industries and business professionals. Firstly, the emergence of an oversupply condition in the student market for Japanese higher education raised questions about the sustainability of less prestigious, private universities in particular. The bankers lending money to those private universities must pay attention to the financial stability of those universities. However, the financial data of private universities as non-profit school corporations, unlike that of for-profit stock companies, was not open to the public. Secondly, universities, especially the top universities of both the public and private sector, face the necessity of attracting more investment from the industrial and business world in order to strengthen their educational and research profile in the face of fierce global competition. In terms of financial capacity, there is still a big gap between the top national universities that are heavily subsidized by the national government in Japan and the leading universities in the United States. Meanwhile, top private universities in Japan have set their tuition fees at quite a modest level

due to the fact that they have to compete with top national universities who charge low tuition fees in the domestic student market. This places a significant limit on the ability to improve quality of education activities to attract high-level, international students. Therefore, in addition to making continuous efforts to identify internationally viable tuition fee levels, they needed to demonstrate a robust financial condition. Thirdly, some private universities lost property after experiencing financial investment failure due to the economic recession of 2008. Universities have now become a major industry, and their economic behaviours inevitably draw attention from the general public.

Two business journals, *Toyo Keizai* and *Diamond*, have also published university rankings as special issues. *Toyo Keizai* (see Appendix) issued their ranking based on an employers' survey in 1996, and began publishing periodic special issues entitled 'Truly strong universities' from 2001. Adding to the employers' review, *Tokyo Keizai* listed their ranking based on the financial performance of major universities along with details of their financial and management profiles. The *Tokyo Keizai* ranking has developed into a comprehensive ranking that now includes performance with regard to finance, management innovation, research, education and employability. On the other hand, the *Diamond* ranking has focused more on employability based on the opinions of directors of human resource management divisions. *Diamond* also published a comprehensive ranking in 2003 based on student selectivity, education and research performance, and the careers of graduates. However, *Diamond* has not issued any periodic rankings since 2006.

National government and university rankings

The Japanese government has also taken an ambivalent attitude towards rankings. Before the emergence of world university rankings, the Japanese government had been basically critical of hierarchical stratification based on student selectivity scores. The introduction of a national standardized entrance examination in 1979 also accelerated an overall tendency for students to choose a university based solely on student selectivity scores. The *First Report* of the Provisional Council of Educational Reform (1985), a government committee on education established under the Prime Minister,

tried to show the alternatives to such an over-reliance on the paper-based entrance examination and to implement an admission system that would permit acceptance for students with various talents (Monbusho, 1992).

In the 1990s, a campaign promoted by the leaders of top national universities on further investment in university education research was overall positively viewed by the government in line with their policy on strengthening investment in the knowledge economy. The enactment of the Science and Technology Basic Act in 1995 made this policy direction a decisive one. Moreover, the ranking of the University of Tokyo in the *Gourman Report* was referred to at the Diet on three occasions (1991, 1994 and 1998) in the 1990s as an indicator of the need to examine the low international prestige of Japanese universities and the necessity to invest in science, technology and university education.

In 2001, Atsuko Toyama, the Minister of Education, Culture, Sports, Science and Technology at the time, revealed his idea to foster around thirty 'world-class' universities, while failing to making any mention of the ranking itself. The emergence of the more widely acknowledged world university rankings, such as World University Rankings by the *Times Higher Education Supplement* and the Academic Ranking for World Universities (ARWU) by Shanghai Jiaotong University, certainly directed the attention of the Japanese government towards such rankings in a more direct way.

Heizo Takenaka, who served as Minister of Internal Affairs and Communication from 2005 to 2006, started to argue, after his retirement from the political world, that the University of Tokyo should be privatized, or financially independent from the national government on the grounds that almost all of the top US universities were private universities. The Liberal Democratic Party (LDP), which lost its ruling position in 2009, set up a project team to improve the ranking positions of Japanese universities in 2006. In 2007, the Central Council for Education (CCE) of MEXT (the Ministry of Education, Culture, Sports, Science and Technology) also set up a working group to discuss the provision of quality information on top Japanese universities to the world.

At the same time, the change of ranking position has been utilized as a political tool for both budgetary requirements and budgetary cuts. The Democratic Party of Japan (DPJ) became a ruling party in 2009 and introduced an expenditure review to examine the effectiveness of prospective budgetary items as a process open to the general public. At this point, MEXT

provided ranking data to argue for the necessity to make further investment in national universities. The examiners, however, tried to interpret this data as evidence of the inefficiency of public spending for universities and academic matters.

The government has also tried to demand information disclosure on the part of universities. The National Institution for Academic Degrees and University Evaluation (NIAD-UE) developed a database of university information on the national universities. From April 2011, the government started to officially require all universities to disclose information on the basic indicators. At the same time, the Japanese government actively provides information on Japanese universities to the UNESCO Portal to Recognized Higher Education Institutions.

Conclusion: a new era of regional collaboration in Asia?

University rankings have certainly had a large influence on Japanese higher education, both at national policy level and at an institutional level. At the same time, it is widely recognized that the existing rankings are clearly insufficient for assessing the highly complex activities and performance of contemporary universities. Through the adoption of a policy that calls for a concentration of public investment in top universities among Asian countries, as well as the rapid economic development of many Asian countries outside of Japan, the gap of ranking positions between Japanese universities and other Asian universities has nearly disappeared over the last decade or two. At present, Japanese universities are faced with the challenge of developing forms of collaboration with Asian universities as equal partners in education and research. The Collective Action for Mobility Program of University Students (CAMPUS Asia) is a symbolic project being establishing by Japanese universities, government and industries in cooperation with Japan's closest neighbours: China and Korea. Stimulated by the efforts of neighbouring countries to develop a world-class higher education system, Japanese universities will continue to strive to enhance their global status. Although rankings still prove problematic, they continue to be influential for the institutional behaviours of Japanese top universities.

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Appendix

Index 1. Indicators and topics that appeared in *Asahi University Rankings 2012*

Information disclosure
Yield rate in admission
Dropout rate
Review by university presidents
Review by high schools
Administrative staff
World university rankings
Tuition fees
Learning environments
Newly established universities
Local public universities
Women's universities
Religious universities
Small-sized universities
University libraries
University repository
International volunteer
Contests
Study abroad programmes
Rate of proceeding to a graduate programme
Number of doctoral degrees issued
Share of female students
Share and number of international students
Universities from which the university presidents graduated
Newly recruited faculty members
Average age of faculty members
Share of alumni of faculty members
Share of faculties with doctoral degrees
Share and number of female faculties
Share and number of international faculties
Share of adult students
Participation in parents meetings
Student life
Appearance in fashion magazines
Job placement support staff
Internship

Pass to examinations for civil servants teachers
 Professional qualifications (lawyers, accountants, etc.)
 Highly cited articles
 Citation index
 Articles listed in Scopus
 Articles in Chemical Abstracts
 Articles in *Nature* and *Science*
 Articles in international journals of economics
 Academic awards
 Patents
 Research grants from the national government
 External research funds
 Research grants from foundations
 Governmental subsidies to private universities
 Salaries of faculty members
 Appearance in media
 Movies and TV drama shootings on campuses
 Members of governmental councils
 Alumni recruiters at companies
 Alumni among Diet members
 Alumni among the presidents of enterprises
 Alumni among sport players
 Alumni among novelists
 Alumni among female TV announcers
 Alumni members
 Number of applicants
 Applicants/admitted students
 Transition students
 Returnee students from overseas
 Students from the local province
 Participants of open campus events
Hensachi (student selectivity score)

Index 2. Indicators appearing in *Daigaku no Jitsuryoku* by *Yomiuri Shimbun*

Students/student quota set by the governments
 Faculty/other academic staff
 Full-time academic staff/part-time academic staff
 Admitted students in various admission processes
 Dropout rate

Graduate rate
Remedial education programmes
Remedial classes on Japanese language
Remedial classes on English language
Classes for TOEIC examination
Compulsory class of mathematics
Project-based learning
Group work
Classes with debate sessions
Class size of first-year student seminars
Class size of language education
Class size of seminars
Minor or sub-major system and credits
Job placement support by alumni associations
Capacity of dormitories
Notice of academic grades to parents
Requirement of undergraduate thesis
Self-evaluation score

Index 3. Indicators appearing in *Tokyo Keizai*

Expenditure for education and research per student
Property of the library (books, journals, multimedia)
Research grant from Japan Society of Promotion of Science
Student-faculty ratio
Ratio of students who acquired jobs upon graduation
Number of senior managers of stock companies at the graduate level
Annual income of 30-year-olds among alumni
Ratio of increase/decrease of applicants
Ordinary income ratio
Share of external funds (except tuition fees and governmental support for operational expenditure) within the total income
Capital adequacy ratio

Chapter 10

The national and institutional impact of university rankings: the case of Malaysia

Sharifah Hapsah

Introduction

The first time that universities were ranked globally in 2004 by QS-THES, Malaysia had two universities in the top 200. The response from one university was extreme jubilation with billboards on campus announcing its arrival in the league of top universities of the world.

However, in September 2005, when the second world university rankings (WUR) were announced the news was like a bombshell. The two top universities had slipped by almost 100 places, one dropping out of the top 200 list altogether. It soon transpired that in the 2004 ranking Malaysian students of Chinese and Indian descent were classified as 'international'. When the mistake was corrected in the subsequent year the ranking dropped. This incident serves to remind us that the criteria and methodology used in rankings have limitations and are often controversial. Ranking organizations continuously improve their rankings system. Hence year-on-year comparison is not an accurate reflection of a university's performance.

Notwithstanding the methodological improvements, the drop in ranking of the premier university in the country was traumatic for all. The leader of the opposition in Parliament called for a Royal Commission of Inquiry. Seminars were held in which QS was invited to explain the ranking system. Letters on the pros and cons of ranking were incessantly published in the media.

Rankings continue to make headlines, and are closely scrutinized by students, politicians, institutional leaders, policy-makers and employers. In fact ranking organizations are themselves surprised at how an innocuous consumer product has rapidly become a global intelligence information business and widely misconceived as lists of quality, evoking intense competition between establishments.

Governmental responses

The initial strong governmental reaction was not unexpected. At that time the country was implementing the Ninth Development Plan in which research universities were to be created to contribute to the transformation of the country into a knowledge-based economy. The government recognized that universities, through education, research and development, play a key role in driving economic growth and global competitiveness by creating, applying

and spreading new ideas and technologies, and producing a skilled workforce (World Bank, 2002). The Ninth Plan was specific in identifying areas such as information and communication technologies (ICT), biotechnology and new materials, where application of such knowledge could result in accelerated growth and more efficient ways of producing goods and services and delivering them more effectively and at lower costs to a greater number of people. Not having a university in the top 200 list was unacceptable.

Until recently, much such initiatives had 'ranking' overtones. This was visible in the references to ranking in the National Higher Education Action Plan (2007–2010) accompanying the National Higher Education Strategic Plan: Beyond 2020 that was launched in 2007. While the Strategic Plan, through seven strategic thrusts, aimed at substantially transforming and making higher education institutions in the country comparable to the best in the world, the Action Plan details critical implementation mechanisms that include five critical agenda to catalyse systemic change. One of the critical agenda projects is the creation of an APEX university as the means towards achieving world-class status.

As the issues surrounding ranking have become clearer the government has taken a more holistic view about ranking. The Minister of Higher Education has expressly stated that universities should not be 'obsessed with ranking' (Khaled Nordin, 2011). The government realizes too that the fiscal requirements may go far beyond national budgets. For example, the top 20 universities in the QS World University Rankings, on average, have about 2,500 academic faculty members, are able to attract and retain top personnel (high selectivity), and have approximately US\$1 billion in endowments and a US\$2 billion annual budget.

Instead the government is focusing more on making the education *system* 'world class' to accommodate the increasing entrants to higher education. Under the Economic Transformation Programme (PEMANDU), several initiatives have been identified for improving the supply as well as demand side to increase access and enhance quality towards making Malaysia a global education hub. During implementation of the Ninth Plan the selection of research universities was completed. Following a rigorous evaluation process four were selected and each was given additional funding and a set of key performance indicators to achieve. Those designated as research universities were able to strategically plan their research programmes and carry out activities that ultimately will raise their profile among peers, increase citations in high-impact journals, and attract reputable international faculty and quality students, which will increase graduate employability.

The Ministry of Higher Education, recognizing that good leadership was crucial in improving the performance of universities, established the Academy for Academic Leadership (AKEPT). Management courses are conducted for senior academicians, and a search committee was established to vet candidates for senior management positions in universities. In 2010 a good university governance guide was developed and used in the audit for institutional autonomy. Good governance and autonomy are perceived as crucial elements of competitiveness, dynamism and ability to face the challenges of a rapidly changing world, and hence all research universities have subsequently been audited.

Many of the initiatives that have been put in place are aimed at restructuring higher education for national competitiveness in the global economy and increasing their share of scientific advancement. In the long term this will strengthen the performance of Malaysian universities in ranking indicators, and while resources are not being allocated purely for improving ranking per se, indirectly ranking has become a tool for driving excellence.

Institutional response

The National University of Malaysia (UKM) has always maintained that rankings are here to stay. They are used not only in education, but also to compare anything from business competitiveness to innovation, corruption, web attractiveness and even the world's richest. Today there are over fifty national and ten global rankings of educational institutions, including the European Union's planned U-Multirank.

Despite the criticisms there is much to be learned from global ranking. Comparative quantitative data on publications and citations, for example, can be a driving force for a university to examine its research quality, and hence design appropriate strategies and actions for continuous quality enhancements in building a research culture and the foundation for a great university.

However, lessons from comparative data are only useful if they are utilized to devise institutional changes that will ensure a genuine and sustainable improvement in the quality of universities over the medium to long term. Malaysia is very much aware that the citation ratio, which indicates the quality and strength of the research culture at its universities, is far from satisfactory. According to the UK Royal Society (*Economist*, 2011) the United Kingdom and the United States accounted for 38.5 per cent of global citations in 2004–2008.

Canada, China, France, Germany, Italy and Japan shared the other 29.1 per cent. Malaysia had a negligible share of the remaining 32.4 per cent.

At UKM, shortfalls in the citations ratio have been addressed in strategies that are embedded in a comprehensive transformation plan with a goal that balances international aspirations with the national mission. Thus, strategies were devised to reinforce the national mission to promote the national language as an academic language and the university's role in nation-building, and to balance these with strategies that will internationalize UKM as a leading research university by 2018.

Using the metaphor of a tern flying high in a balanced and focused way towards its transformative goal, we devised a UKM Knowledge Ecosystem to incorporate all strategies comprehensively. The backbone of the bird represents the core processes of education, research and service, each containing both international and national dimensions. Also in the backbone are the elements of an efficient delivery system.

An important strategy in the transformation plan is to nurture a vibrant research culture by growing interdisciplinary research groups and research centres. Acknowledging it cannot do everything and be known for everything, UKM has focused on eight areas of national and global importance and impact in terms of attracting researchers, internal and external grants, collaboration from academic institutions and industry partners, publications in high-impact journals and socio-economic benefits. An important niche is the challenge of nation-building, which examines issues such as ethnic relations, national unity and globalization. The other areas are medical and health technology, sustainable regional development, renewable energy, nanotechnology and advanced materials, biodiversity for biotechnology, visual informatics and climate change.

The wings of our bird represent cross-cutting driver projects that push us forward faster. The right wing represents specific projects that support our mission as a national university – making the Malay language attractive globally and contributing to the development of a united nation. The left represents projects that advance UKM on the global stage.

An example of a left-wing project is the citation leap, which is aimed at improving our citation ratio. Paper-writing workshops are held regularly and a mentoring system has been instituted. Citations are monitored monthly with financial and career advancement as incentives, and a target for all our journals to be indexed by 2018 has been set. Currently five are indexed by

Scopus, and one, indexed both by Scopus and ISI Web of Science, has received an impact factor. Getting UKM's journals indexed is a way to internationalize our national language. It is heartening to note that we are beginning to receive citations for articles published in the Malay language.

Other driver projects are aimed at enhancing internationalization through global outreach for long and short-term international students. Better employability is enhanced through outcome-based curricula with an emphasis on experiential learning, entrepreneurship, English-language proficiency and industrial attachment. Members of academia are encouraged to work with the private sector on consultancy and research projects so as to obtain external funding, as well as to leverage the expertise available in the private sector.

At the tail end of the bird is the transformation machinery, containing projects, structures and processes that will help us manage change in a stable manner. Key performance indicators are identified in six pillars of excellence. Targets are set and monitored for good governance, leadership and succession planning, talent management, teaching and learning, research and innovation as well community engagement.

The university has subjected itself to an institutional audit and has been granted self-accreditation status and a reaffirmation of its research university status. It recently submitted to a good governance audit as an accountability measure for greater autonomy. With autonomy it is expected that the road to excellence will be expedited.

Shortcomings of university rankings

The ranking process is kept simple because few indicators of quality in higher education translate reliably across borders. From the six qualitative data used by QS, a single number is mathematically derived to give a snapshot expression of the position of an institution relative to others with regards to the different aspects of the quality of an institution. However, the indicators used in ranking have to be interpreted with care. Internationalization as measured by international students and staff does not necessarily equate to quality, a factor much valued in a university of repute.

Validity issues also still dominate every discussion about the measures used to assess research and teaching quality. How do we account for the dramatic

differences in citation volumes between disciplines, and the tendency for researchers to 'cite each other'? Citations have increased tremendously since the World University Rankings came into being. The Royal Society (*Economist*, 2011) reports that citation in the period 2004–2008 grew by 55 per cent compared to the 1999–2003 period. The number of published papers however grew by just 33 per cent.

Further, does the staff–student ratio reflect good culturally defined teaching–learning methodology? The university provides the intellectual and ethical environment for enriching students' learning experiences, where young minds are inspired and free to create and innovate, unfettered and unhampered by fear, anxiety or constricting mores, and imbued with a deep sense of social responsibility. Fostering entrepreneurship skills is another area of focus of UKM to prepare graduates to launch start-up companies or, if employed, be able to enhance the productivity of their companies through innovation. Yet, what universities and teachers do to inculcate these values and skills is not translated into ranking indicators, and certainly cannot be measured by simple staff–student ratios. Teaching quality must be measured by students' learning experience. We need a better indicator.

With regards to choice of indicators, this could be a never-ending debate. For example, should we just depend on employers' perceptions to gauge employability when more and more universities are now stressing entrepreneurship and self-employment as a measure of their graduates' success? Using international students as an indicator disadvantages many developing countries where universities are expected to fulfil unmet local demands.

There is also heavy reliance on the qualitative peer review and recruiter survey, which together comprise 50 per cent of the scores. Such judgments are known to be influenced by factors such as legacy and traditions, which may confer advantages to older institutions with wide subject coverage.

There is also concern regarding the commercial interest in ranking and how educational budgets might be diverted to playing the ranking game, such as participating in promotional tours and buying advertisement space on ranking websites. Conversely, there are factors that bring global recognition to a university, but which may not be considered in ranking. UKM has partnered with QS (Third QS World-Class Seminar, 2008) to showcase how UKM's research in the geology and biodiversity of the flora and fauna of Langkawi and its collaboration with the local authority has culminated in the island being declared the world's 52nd Geopark in the UNESCO Global Geopark Network, and the first in Southeast Asia. Langkawi's Geoforest park is now a

favourite destination for sustainable ecotourism and one that has brought greater economic opportunities for local people. Through their work on the Geopark, UKM's researchers have been accorded international recognition by the Global Geopark Bureau. UKM is the secretariat for the Asia-Pacific Global Geopark Network (APGGN).

The university's contribution to sustainable development is a highly meaningful indicator, but one that is seldom used. UKM has numerous projects that promote social harmony, environmental conservation, entrepreneurship, gender equality, poverty eradication and sustainable as well as inclusive development that generally lead to a better quality of life of communities. Yusuf and Nabeshima (2007) have also reported such findings. These measures are not captured in international rankings although they may also bring universities to global prominence. This omission should not deter universities from pursuing their mission to transfer knowledge that can create value in producing innovations that directly drive sustainable wealth generation and societal development at the local, national and global levels.

Transparency and misuse of rankings

Ranking is not a perfect measure of a university's actual worth. It also does not address the needs of individual stakeholders, such as students who are looking for specific information to help them select an institution for their programme of study.

Likewise, in the rush to enhance international reputation some universities recruit international staff and students with scant regard for their qualifications. Such an approach is not only short-sighted and counterproductive for institutional capacity-building, but may jeopardize the nurturing of a true academic culture and endanger the mission of the university itself.

The future of world university rankings

Rankings should not be used to make judgments about who is best. Universities should be judged on how best they fit the purpose of their establishment and public funding. Even in the same country, universities

differ in their missions. At UKM, for example, our work is not only confined to producing leaders, research output and science that is expected of a 'world-class' university, but also in nation-building and promoting Malay as a scientific language as befitting our mandate as a national university. In addition, we are expected to play our role in the national innovation system by initiating changes that create new value in financial and social returns to our stakeholders.

Thus, national ranking systems such as SETARA in Malaysia are evolving based on additional measures which are weighted according to the type of university being evaluated. A research university for example, will have 50 per cent of total scores devoted to research output and the quality of academic staff. Indicators measure competitiveness in securing research grants and endowments, ability to transfer technology to the marketplace for wealth generation, and effectiveness in transferring knowledge for policy formulation or community gains.

Conclusion

Rankings are here to stay but this does not mean that governments should initiate policies targeted at creating 'world-class' universities as a panacea for success in a global economy. Instead they should focus on making their education *system* world class. International rankings do provide useful comparative data that can be a driving force for a university to examine its research and teaching quality, and hence design appropriate strategies and actions for continuous quality enhancements in building a research culture and the foundation for a great university. It is even more useful if ranking methodology evaluates the deeper contextual level to enable forward planning for institutional changes that will ensure a genuine and sustainable improvement in the quality of universities in the medium to long term. A university's worth is more than the criteria used in ranking. Although innovations in stakeholder engagement are currently missing in ranking, the omission should not deter us from continuing to value these activities. The genuine test of a university's mettle is how it continuously anticipates and leads change through innovations that create new value and give social, environmental and financial returns for the university, the nation and region. We need to devise better indicators and methods for assessing the impact on business innovation, socio-cultural promotion and environmental development of a region. In the words of Einstein, 'Not all that counts can be counted'.

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Chapter 11

What's the use of rankings?

Kevin Downing

The value of rankings to the ‘consumer’

Regardless of their controversial nature, global university rankings are now a reality, are already exerting substantial influence on the long-term development of higher education across the world, and are likely here to stay (Marginson and van der Wende, 2007). Three ranking systems are currently in positions of relative global dominance in the English-speaking world. The oldest system, by one year, is that prepared by the Shanghai Jiao Tong University (SJTU), which was first issued in 2003, with the QS World University Rankings published by QS Quacquarelli Symonds (QS), now in their eighth year, first being published in 2004. In 2010, *Times Higher Education* also launched a world university ranking system, having separated from seven years of collaboration with QS, to produce the third global university-ranking offering. These rankings recognize the growing impact of the global environment on higher education systems and institutions, and the importance placed on some means of identifying institutional excellence by prospective ‘consumers’. Some of these consumers have the advantage of government-funded or subsidized opportunities to access higher education, while others will be investing their own funds to obtain the best education possible for themselves or, more likely, their offspring.

In almost every walk of life we can make informed choices because we are provided with appropriate ways of assessing the quality of what we purchase and consequently narrowing down the choice of products we wish to investigate further. However, for government-funded higher education, the currency consumers use is not always money, but the quality of secondary education and subsequent achievements (usually via final secondary exit examination grades), and it is only natural that these consumers, and their parents, want to make the right choices from among a bewilderingly large and globally diverse group of offerings. Very broadly, the advent of rankings has enabled these individuals to access information about an institution as a whole that will assist with that choice. While it might not provide information about the particular strengths and weaknesses of the disciplines and departments encompassed within any given higher education institution (HEI), at undergraduate level it is often the reputation and ranking of the HEI that will encourage further investigation. In fact, outside of academic circles (and in some cases inside as well) the strengths and weaknesses of particular departments or disciplines within

an institution are often ignored in favour of recognizing that someone has a degree from a widely acknowledged and traditionally prestigious institution. Academics, students, their parents and employers recognize this, and as students become more globally mobile, the reputation of any HEI in terms of its standing or ranking comparative to others, will continue to grow in importance.

Flaws in ranking practices

Taking the QS rankings as an example of a more holistic ranking than its Shanghai Jiao Tong counterpart, which will be regarded by some as limited in scope by its focus on research, it is relatively easy to criticize the ranking process in terms of both the criteria used and the relative weightings of these. For example, 40 per cent of the QS ranking is based upon a reputational survey of international academic opinion and the results from these criteria probably roughly indicate the existing market position of the institution, rather than its particular merits. In terms of indicators of internationalization, 5 per cent of the ranking is based upon the proportion of international students and 5 per cent on the proportion of international staff. As such, Marginson (2007) is right to point out that this is probably, in many cases, an indicator of the success of a university's marketing division, rather than its researchers. This criticism is further supported by the fact that only 20 per cent of the QS ranking comes from research papers and citations. The remaining 30 per cent of the ranking score is made up of faculty-student ratio (20 per cent) and employer review (10 per cent). Accepting that faculty-student ratio is not a particularly sophisticated indicator of learning and teaching quality, it is nonetheless an attempt in a large and wide-ranging survey to obtain some measure of the contact students might have with their academic mentors. Employer review is also a reasonable recognition of something that academics are often too ready to forget: that the majority of their students will probably be seeking employment after graduation rather than aspiring to careers as academics. Therefore, these criteria relate more to graduate employability and work-readiness rather than academic strength, and in particular the ability to work effectively in a multi-cultural team, to deliver presentations, and to manage people and projects.

Commoditization vs. healthy competition

To some these global rankings are an indicator that higher education is being turned into a commodity, with a menu of ‘fast’ options emerging from the sectorization of institutions both within their own countries and globally. However, it is important to realize that this sectorization of institutions from high-end research intensive universities, to those who specialize largely in learning and teaching without much emphasis on research output, has been encouraged by governments around the world for many years, and long before the advent of the major global ranking systems discussed in this chapter. In some ways, the ranking systems can help those, often younger, institutions with a rapidly developing research base demonstrate that they are evolving and changing in ways which require their governments and funding bodies to reassess the identified national role. In fact, this is the area where it could be expected that rankings will continue to exert positive influence. For example, if the same institutions remain in the top 100 or so, year after year, with few newcomers, that would suggest that either the ranking system does not have sufficient discriminative validity, or that universities are complacent about their global role and practice. We live in societies where competition is generally regarded as a necessity in order to drive progress, and to continuously improve both the quality of products and the efficiency with which they are produced. Is higher education so different or remote from the real world that we are justified in arguing that we should not be subject to these universal forces? Of course not. In fact, research has been driven by competition for hundreds of years and humanity has nonetheless managed to innovate and thrive.

The uses of rankings for higher education institutions (HEIs)

Having established that they are probably here to stay, and considered just a few of the failings of rankings and some of the possible negative influences they could exert on global higher education, it is now time to turn to the positive aspects of rankings for HEIs and suggest some strategic actions that ambitious universities might take to improve and evidence the quality of the learning experience for their students, increase the quality of their research output, attract top researchers and potentially improve funding streams. At an institutional level, rankings can help focus the minds of faculty on the core

business of teaching, research and knowledge transfer, particularly if senior management identifies a clear set of goals in relation to the ranking criteria. At its most basic level, this can simply involve recognition that, at a particular stage in an HEI's development, it is no longer an issue of researchers producing papers, but more a question of the quality of the papers produced and the journals in which they are published. This can lead to institutions and departments/disciplines targeting a particular segment of journals for particular academic grades to publish in. This ensures that faculty members are provided with a clear idea of what is expected of them in relation to their grade, and what some of the criteria related to research and publication might be for promotion.

Institutional rank aside, examining ranking criteria can help an institution focus on some crucial areas of practice, and identify appropriate benchmarks in line with their institutional aspirations. For example, the QS rankings identify faculty–student ratio as a very crude indicator of teaching quality and this has sparked debate at many universities about how to break down this very broad indicator into something that can be of direct benefit to the learning environment. Many HEI's currently rely largely on student feedback questionnaires to provide evidence of quality teaching, and compare scores across departments and disciplines. These typically invoke considerable debate within HEI's, with those faculty who achieve good student feedback ratings generally extolling the virtues of the system, and those who do not coming up with a range of, often legitimate, reasons why they are inaccurate or simply a measure of a teacher's popularity. At City University of Hong Kong, the debate about the validity of student feedback questionnaires has continued for many years with little hope of consensus. However, the advent of evidence-based competitive bidding for government funding in the Hong Kong sector, and the early realization that we were, like it or not, being ranked by independent external bodies, provided additional impetus for a radical and wide-ranging look at not only how we assess the quality of our learning environment, but also how we encourage continuous developments and improvements which benefit our students. While there are clearly a number of qualitative indicators that can be and are used to assess quality, quantitative factors remain a useful tool in terms of institutional management because they provide 'hard' data by which to assess progress towards strategic goals. One glaring factor to emerge from this debate was a general lack of clear and reasonably objective performance indicators upon which the majority of faculty could agree, and which might be used to channel funding for learning and teaching improvements to areas of potential or proven excellence.

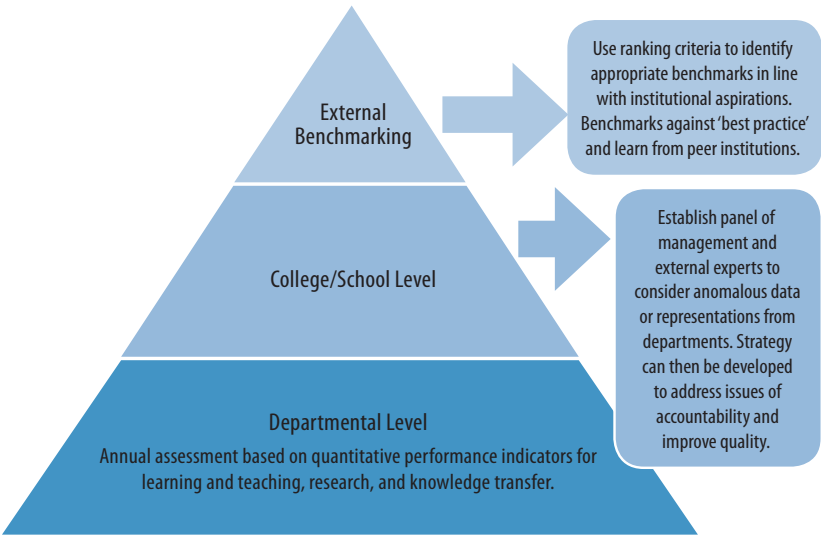
Benchmarking and performance indicators

The rankings have provided a timely catalyst for HEI's to identify and engage in comprehensive benchmarking exercises against institutions, sometimes with a higher ranking overall or on selected criteria, providing some fascinating insights into how global peers have tackled certain key issues. Consequently, many HEI's are beginning to develop their own systems for assessing the quality of learning and teaching at a departmental level, which incorporates the best of the observed global practices, while ensuring these meet particular local and regional requirements. Theoretically this poses a problem for some who suggest that this might lead to a future lack of differentiation in higher education systems around the world as they copy best practices from one another. In practice, it can be argued that this is unlikely because universities will always interpret best practice in terms of their local and regional requirements and contexts. For example, many universities will have a strong community role that is central to their performance assessment, and this will inevitably differ from one location to another.

The use of more comprehensive benchmarking, encouraged by the various rankings criteria, provides a starting point for evidenced-based institutional improvements, and a more thorough understanding of an institution's role against a wider backdrop of similar institutions elsewhere in the world. It also encourages those HEIs that do not typically give evidence of their performance in certain key areas of practice to consider not only who they are within their local and regional context, but also how they might demonstrate that they are developing and improving. Within institutions, this requires encouraging faculty to both collaborate and compete with each other to help the institution achieve a level of excellence and adhere to its strategic goals.

This approach involves identifying clear, agreed quantitative performance indicators for the core areas of business (e.g. research, learning and teaching, knowledge transfer, community, etc.). The example given here is for learning and teaching, assessed at departmental level and within colleges and schools, and involves establishing an annual panel of college/school management together with external experts to consider any anomalous data or representations from departments (Figure 1).

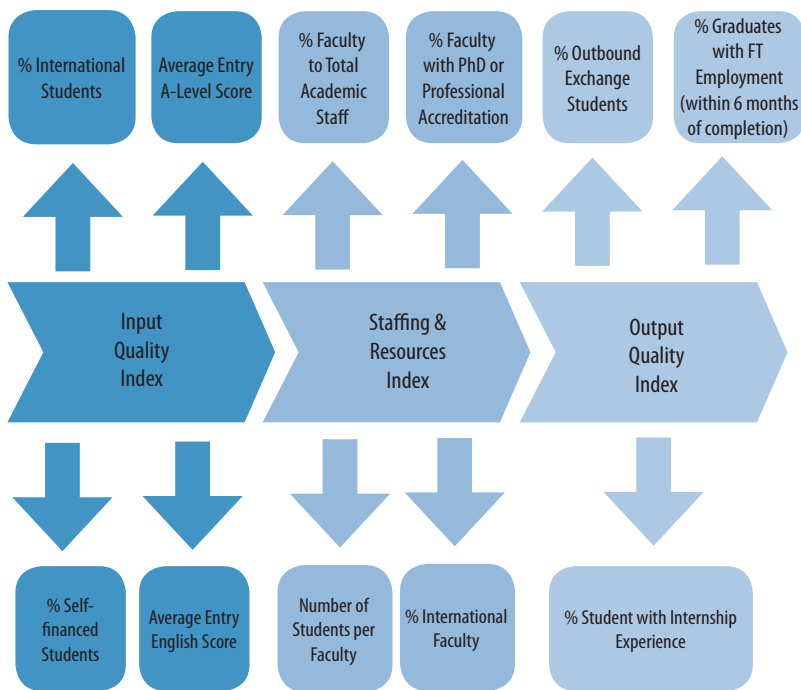
Figure 1. The process from benchmarking to performance indicators



Source: author.

The example performance indicators for learning and teaching (Figure 2) suggested in this chapter are based on many years of feedback from students and alumni, and the broad requirements of governments in terms of monitoring the progress of HEIs within their jurisdiction. Many are also aligned with some rankings criteria. They include three indices: the Input Quality Index, the Output Quality Index, and the Staffing and Resources Index. Each index contains a number of performance indicators, which form a basis for assessing the annual performance of departments compared to their internal and external benchmarks.

Figure 2. Example performance indicators for learning and teaching



Source: author.

For example, one of the indicators for the Input Quality Index is the percentage of international students studying full time in that department (this is data increasingly required by governments for competitive bidding and funding allocation purposes), and is one indicator of international outlook. Clearly, some departments will not, by the very nature of their programmes, be able to attract large numbers of international students, and this is a factor which can be considered by the annual review panel. The Input Quality Index also provides a baseline for longitudinal measurement of a selection of performance indicators via the gap between input data and data from the Output Quality Index. A typical indicator for output quality might be the percentage of students with an internship or placement experience over thirty days in total. This might be an important factor in terms of the academic direction of those institutions where employers of graduates have indicated that they increasingly want graduates who leave university with transferable ‘functioning’ knowledge rather than just ‘declarative’ or

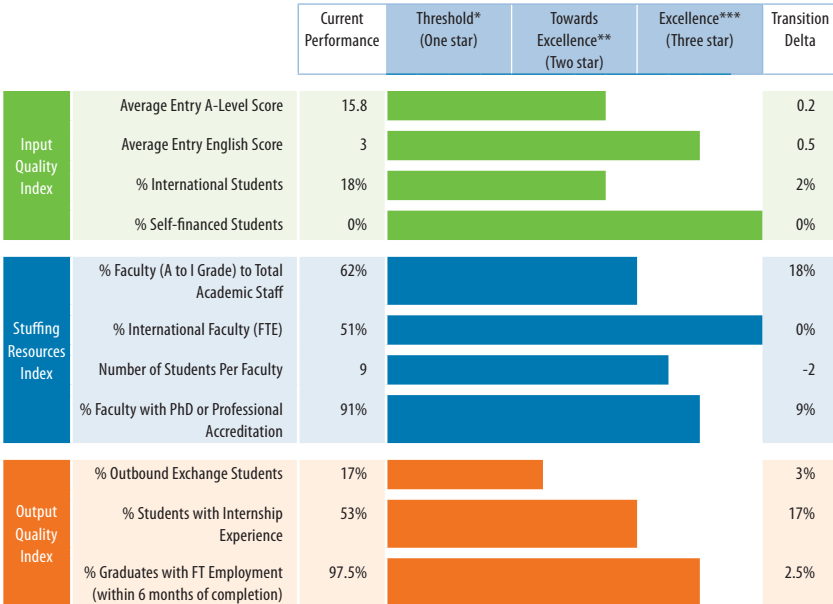
‘procedural’ knowledge (Biggs, 1999). Many students who have engaged in positive internship opportunities have indicated that the experience contributed significantly to their learning at university. Therefore, the differences between the Input Quality Index performance indicators and the Output Quality Index performance indicators can provide a quantitative measure of value-added during the period of undergraduate study against a selected range of important criteria designed to improve and demonstrate the developing quality of the learning experience.

The Staffing and Resources Index contains data related to staff: student ratio, staff grades, IT provision, and the percentage of international staff attracted to work with a particular HEI, as well as other indicators. A serious look at this data from my own institution’s viewpoint has allowed us, among other initiatives, to make significant cuts in self-financed programmes over the past three years, freeing up more time for faculty to spend with students and engage in research-related work. It has also helped us begin to create the right staffing profile within departments in terms of grades and the ratio between academic faculty and administrative staff.

All three indices are made up of a number of performance indicators, which can be adapted or changed to align with the strategic direction of a particular university or department, or as result of feedback from stakeholders. Interestingly, although the indices are clearly aligned with the QS criteria, this was not an intentional process when designing the indicators, and although the QS rankings were a key catalyst for seriously re-examining how to demonstrate the quality of learning environments (as well as research and knowledge transfer performance), the major drivers in the case of the City University of Hong Kong were feedback from our students, alumni and employers, and moves from the Universities Grants Council in Hong Kong to introduce evidenced-based competitive bidding amongst local HEIs.

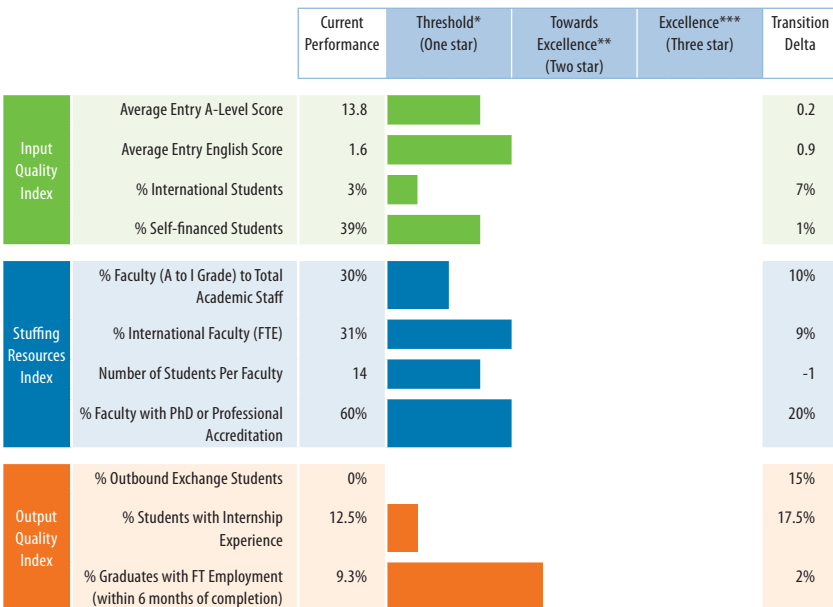
Within HEIs, the identification of appropriate performance indicators for core tasks in line with strategy allows for better management of performance at departmental level. Institutional research offices can then prepare annual ‘growth charts’ with selected indicators, which allow departments within a discipline or college to be compared in terms of the chosen criteria. Example charts for learning and teaching are provided as Figures 3 and 4, although additional criteria are also available for research and grant income as well as knowledge transfer, community contributions and administration.

Figure 3. Example growth chart (department X)



Source: author.

Figure 4. Example growth chart (department Y)



Source: author

These charts can then be used as a basis for more evidence-based allocation of funding at annual budget hearings and funding allocation meetings. They can also be used to compare the performance of departments (and potentially their leadership and faculty) in line with the defined institutional and departmental/college based strategies. A comparison of Figures 3 and 4 above reveals the gap in performance between department X and department Y, which can alert senior management to departments where performance is not optimized, so that appropriate steps can be taken to identify and rectify the problem(s). Essentially, departments can then be graded within the institution as zero, one, two or three-star in terms of the core area being assessed – in this case learning and teaching. It might be the case that one department does not perform well on some indicators, but this might be as a result of its discipline or role. For example, one might expect that a local social work department might not attract many international students, or that a largely learning and teaching focused department with a strong community role might not be too interested in outbound student exchange numbers. While I have not shared the research, knowledge transfer, community and administration indicators that I have developed here, the reader will recognize that it is possible that some departments will be three-star for learning and teaching, and perhaps one-star for research or knowledge transfer. There might be good strategic reasons for this within the institution, so the performance of that department might be regarded as exemplary despite a lower score than other departments in the same college in terms of research or knowledge transfer. Equally, some disciplines might not be suited to some indicators for a range of reasons, in which case indicators can be adapted and weighted accordingly. Consequently, this model is entirely flexible and can be fitted to a wide range of disciplines and contexts. Therefore, by adapting and using the performance indicators wisely and fairly, universities can ensure that they stay on their chosen strategic course, and, perhaps just as important in today's metrics-conscious environment, they can provide evidence of their progress.

Conclusion

This chapter has considered an often-neglected aspect of the new rankings culture, namely the benefits individual institutions can gain from the ranking concept. A fairly pragmatic view has been taken which acknowledges that rankings are here to stay, and have in fact been with us long before the advent of the Shanghai Jiaotong or QS rankings. Are rankings propelling us towards the commoditization of HEIs and their offerings, or merely providing at least some comparative measures of an institution's global standing and a catalyst

for further healthy competition? Whatever the answer to this question, there can be no doubt that the notion of a 'world-class university' is becoming ever more important to governments, employers, investors, alumni, students, parents and institutions themselves and, without some sort of measurement, it is difficult to identify which universities may qualify today, and how those institutions with real ambition might qualify tomorrow. Reputation alone is a recipe for stagnation and avoidance of healthy competition, and encourages potentially biased self-justification.

All rankings inevitably invite criticism (Downing, 2012) and it is often easier to concentrate on what is wrong with them, than try to identify how they might be used to bring about practical positive, strategic change which will benefit all stakeholders, not least the ultimate product of our endeavours – the quality of our graduates and our research output. The author believes that rankings have encouraged many institutions to take a new approach that concentrates on analysing and identifying appropriate performance indicators (in consultation with all stakeholders), which provide evidence of improvements to the core activities of learning and teaching, research and knowledge transfer. Consequently, rankings have helped create a global environment where it is now easier to make and provide evidence of real and positive qualitative improvements in these areas. If the result of these improvements is a significant rise in the institution's score on one or more of the ranking criteria then that should be regarded as a bonus. Rankings do provide reasonable, broadly comparative measures of an institution's global standing and can be used to help foster healthy competition among the best universities. They are also useful self-evaluation tools that enable universities to appropriately benchmark and bring about positive strategic change, which ultimately benefits all stakeholders, not least students.

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Chapter 12

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

Imanol Ordorika and Marion Lloyd

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 (Balseguí 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 Webometrics⁵ and SCImago Institutions Rankings (SIR).⁶ The European Union⁷ 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 SCImago 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 instruments²⁰ (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 Knowledge 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 CLASE²⁷ 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 database²⁹ 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 world-wide 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 world-wide 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.

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Part 4

Alternative Approaches

Chapter 13

If ranking is the disease,
is benchmarking the cure?

Jamil Salmi

Introduction

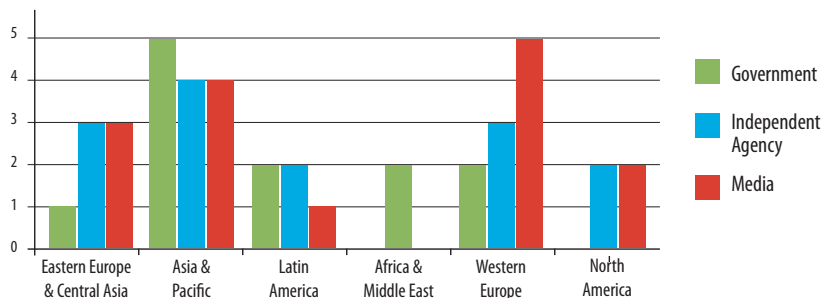
Preoccupations about university rankings reflect the general recognition that economic growth and global competitiveness are increasingly driven by knowledge and that universities play a key role in that context. Indeed, tertiary education institutions have a critical role in supporting knowledge-driven economic growth strategies and the construction of democratic, socially cohesive societies. Through the preparation of a skilled, productive and flexible labour force and the creation, application and dissemination of ideas and technologies, tertiary education helps countries become more globally competitive.

However, attempts to measure and analyse what works at the tertiary education level have emphasized the performance of individual institutions, for example, in terms of the competitiveness of admissions, research output and employability of graduates, among other factors. International rankings have focused on the relative standings of countries, using the position of their top universities as a proxy for the performance of the entire tertiary education system. But while rankings may provide information about individual institutions in comparison to others, they do not provide an adequate measure of the overall strength of a country's tertiary education system. This chapter explores, therefore, the appropriateness of rankings as a measure of performance of tertiary education systems. After looking at the uses and abuses of rankings, it explains the difference between rankings and benchmarking methodologies. Finally, it presents the World Bank's benchmarking tool, which is currently under construction.

Uses and abuses of rankings

There has been a proliferation of ranking in recent years, including, for example, the Academic Ranking of World Universities (ARWU), *Times Higher Education's* Ranking, the Web of World Universities Ranking, CHE, *U.S. News & World Report*, and many rankings of business schools. These rankings have been produced by various organizations ranging from national governments and independent agencies to the media. Figure 1 below shows the distribution of ranking production as of 2010.

Figure 1. Who prepares the rankings?



Source: the author.

Accompanying the proliferation of rankings have been intense reactions, ranging from disagreements about the very principle of rankings, criticism about the methodology of rankings, boycotts, political pressure, and even court actions to stop the publication of rankings.

The expansion of league tables and ranking exercises has not gone unnoticed by the various stakeholders and the reaction they elicit is rarely benign. Such rankings are often dismissed by their many critics as irrelevant exercises fraught with data and methodological flaws, they are boycotted by some universities angry at the results, and they are used by political opponents as a convenient way to criticize governments (Salmi and Saroyan, 2007: 80).

This type of intense reaction is not unwarranted. The results of a ranking and/or the desire to move up in a ranking can add perverse incentives to institutional decision-making. For example, a university keen on moving up a ranking may consider altering admission policy to give increased priority to top students, while compromising principles of equity or diversity in the student body in order to boost entering average scores and, thus, the perceived quality of the institution. Or at the extreme, institutions may encourage students to lie in order to boost results of student satisfaction surveys, which are often weighted into institutional scores, as happened, for example, at Kingston University in the United Kingdom in the early 2000s.

As noted by Malcolm Gladwell (2011: 70), rankings such as that of widely popular *U.S. News & World Report* are flawed because they are heterogeneous. For example, they do not just compare public institutions of the same size but rather private institutions that tend to be smaller, more specialized and have higher funding per student:

The *U.S. News and World Report* doesn't just compare U.C. Irvine, the University of Washington, the University of Texas-Austin, the University of Wisconsin-Madison, Penn State, and the University of Illinois, Urbana-Champaign – all public institutions of roughly the same size. It aims to compare Penn State – a very large, public, land-grant university with a low tuition and an economically diverse student body, set in a rural valley in central Pennsylvania... with Yeshiva University, a small, expensive, private Jewish university whose undergraduate programme is set on two campuses in Manhattan (one in mid-town for the women, and one far uptown for the men).

Given that there is so much at stake in a positive ranking of a country's institutions, it is not surprising to see that some governments have responded by encouraging the preparation of alternative rankings when they are not satisfied with the standing of their national universities. For example, a new global ranking in Russia, elaborated by RatER, the Russian ranking agency, has placed Moscow State University ahead of universities such as Harvard, Stanford and Cambridge, which come on top of the Shanghai and *Times Higher Education* rankings (Smolentseva, 2010). During the French presidency of the European Union in 2008, one of the achievements of the Minister of Higher Education was to convince the European Commission in Brussels to launch a new European ranking that would be 'more objective and more favourable to European universities'.¹

Despite the controversy surrounding rankings, there are good reasons why rankings persist. These include the benefits of information provided to students who are looking to make a choice between various institutions, either domestically or for studies abroad. As a consequence, rankings and information about student engagement and labour market outcomes in the country of interest are valuable. Further, rankings promote a culture of transparency, providing institutions with incentives to collect and publish more reliable data. Finally, rankings promote the setting of stretch goals by the institution. In so doing, institutions may find themselves analysing key factors explaining

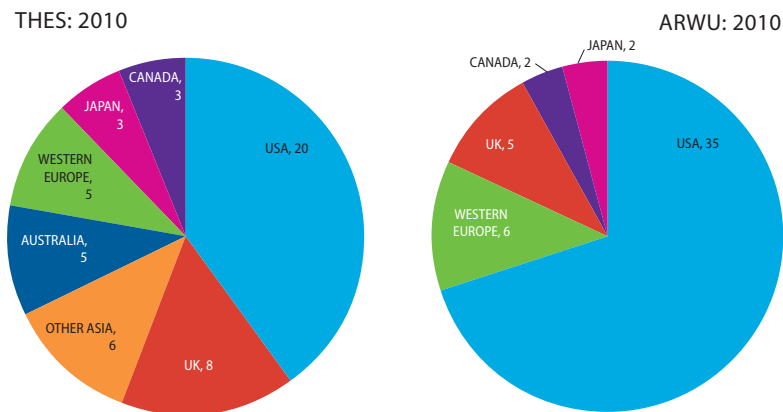
1 From Minister Valérie Pécresse's declaration at the Conference on International Comparisons in Education held in Paris in December 2008.

ranking, seeking to improve teaching, learning and research, proposing concrete targets to guide (but not replace) strategic planning, and entering into mutually advantageous partnerships.

From ranking to benchmarking

The rankings lens allows students, parents and employers to look at the results of individual institutions; however, they do not say much, if anything, about the overall performance of tertiary education systems. For example, rankings do not measure the results of systems in terms of access and equity, quality and relevance, institutional differentiation, and contribution to local economic and social development through the training of skilled human capital and the production of patents. According to global rankings, the best institutions in the world are overwhelmingly located in the United States, as shown by Figure 2, which provides the breakdown of the top 50 universities as identified by *Times Higher Education* and the Academic Ranking of World Universities (ARWU). In the first case, 40 per cent come from the United States; in the second case, the ranking classifies 70 per cent of the top 50 best institutions as being from the United States.

Figure 2. Distribution of the Top 50 universities, 2010



Sources: Shanghai Jiao Tong (2010); *Times Higher Education* (2010).

Surprisingly, Japan is the only Asian country represented in ARWU, while six Asian universities besides Japan are represented in the *Times Higher Education* rankings. And yet, the so-called Asian tigers (Hong Kong, Singapore, South Korea, Taiwan) are usually considered among the most dynamic knowledge economies in the world. In addition, if one calculates the number of ‘world-class universities’ relative to the population of countries, it appears that there are a number of dynamic knowledge economies which seem to be doing very well without universities in the top 500 ranked universities in the world, as indicated in Table 1 below. In addition this table shows that some countries are more efficient in creating top 500 ranked institutions compared to others. For example, Finland, New Zealand and Sweden have the highest number of ranked institutions per capita compared to other countries.

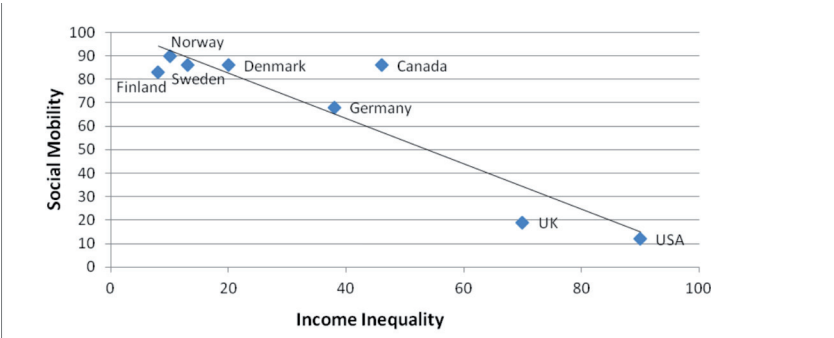
Table 1. ARWU ranking of countries taking their population into consideration, 2009

Country	No. top 500s	Population (in thousands)	Thousands of people required to produce each top 500 institution
Sweden	11	9 394.13	854.01
New Zealand	5	4370.7	874.14
Finland	6	5 362.61	893.77
Israel	7	7577	1 082.43
Switzerland	7	7 790.01	1 112.86
Austria	7	8 381.78	1 197.40
Norway	4	4 882.93	1 220.73
Australia	17	22 327.2	1 313.36
Denmark	4	5 565.02	1 391.26
Ireland	3	4 451.31	1 483.77

Sources: Shanghai Jiao Tong (2010); World Bank (2009).

Similarly, rankings give little indication to the effectiveness of a countries’ tertiary education system in serving as a ladder out of poverty. As shown in Figure 3 below, countries such as the United States and the United Kingdom, which have the highest number of top ranked universities, are not doing a good job when it comes to social mobility.

Figure 3. Relationship between income inequality and social mobility



Source: Wilkinson and Pickett (2010).²

Thus, an objective framework to measure the effectiveness and efficiency of tertiary education systems in increasing equity, access, quality, relevance and promoting local economic and social development is required. While rankings are somewhat useful in comparing individual institutions, they miss the point in evaluating the success of a system in achieving the outcomes it is purportedly created to do.

Benchmarking tertiary education systems

There is no consensus on what countries should do to improve their performance and there are wide variations in system performance with similar funding levels and common country characteristics. Benchmarking allows comparing systems from countries in similar stages of development, regions of the world or political context. Benchmarking is the process of comparing the performance of one's tertiary education system to that of other systems. It enables a user to identify competitors and learn from best practice. Unlike rankings that lead to a 'race to the top', benchmarking provides a tempered learning. The purpose of benchmarking is to improve performance diagnosis (identification of areas for improvement) and definition of specific corrective interventions to enable countries and systems to reach their performance potential. In order to achieve this objective, users need to understand the determinants of performance. The matrix below summarizes the major differences between ranking and benchmarking for assessing performance in tertiary education (Table 2).

² In their book, *The Spirit Level*, Wilkinson and Pickett develop their own index of income inequality and social mobility (probability that an individual will have a better socio-economic position than his/her parents) expressed on a 0–100 scale.

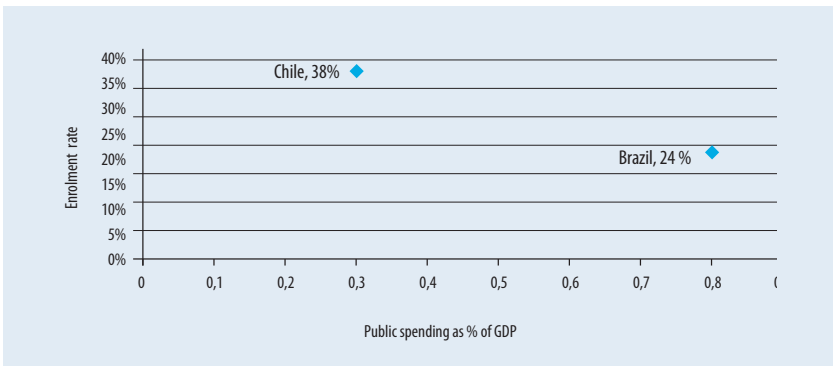
Table 2. Comparing ranking and benchmarking

Characteristics	Ranking	Benchmarking
Unit of analysis	University/programme	Tertiary education institution or tertiary education system
Purpose of exercise	Hierarchical ranking/reputational competition	Comparison to identify strengths and weaknesses for improvement purposes
Degree of comprehensiveness	Research/internationalization focus	Considers all missions of TEIs (education, research, technology transfer, regional engagement)
Ease of use	One number summarizes the results	Need to consider multiple indicators
Diagnosis of factors	Limited to the criteria imposed by the ranker	Systematic quantitative and qualitative analysis of data, indicators and reports
Choice of comparators	Imposed by the ranker	Selected by the benchmarking team
Weight of indicators	Relative importance of indicators determined by the ranker	Relative importance of indicators determined by benchmarking team
Transparency	Reliance on published and verifiable data as well as reputational surveys	Reliance on published and verifiable data
Objectivity	At risk with reputational surveys and arbitrary weights	Linked to choice of indicators
Users	General public	Analysis tailored to needs of individual institution or government
Participation of subject	Possibility of opting out	Decision to opt in

Source: Developed by author.

To show an example of benchmarking in action, it is possible to compare the performance of Chile and Brazil. If the goal is to have the highest enrolment rates possible, then Chile can be shown to be more efficient than Brazil relative to the level of public resources used. As illustrated in Figure 4, Chile spends about 3 per cent of GDP on tertiary education and has an enrolment rate of about 38 per cent, while Brazil spends almost 0.9 per cent and has only a 24 per cent enrolment rate. This poses the following questions: why is Chile more efficient, and what can Brazil learn from Chile's example?

Figure 4. Comparing enrolment rates and public investment on tertiary education in Chile and Brazil



Sources: OECD (2009) (ref year 2007); UIS, (2010).

Thus, there is a distinction between the inputs a country invests in their higher education system and its outcomes. In elaborating the theoretical framework for the benchmarking programme, this distinction has been conceptualized as performance and health of a system. What are the predictors of system performance and does a country's higher education system operate under conditions known to lead to high performance?

A key feature of the World Bank's proposed benchmarking tool is that it is built around a fundamental distinction between the results of tertiary education systems ('system performance') and the drivers of performance that account for these results ('system health'), with the purpose of addressing the following two questions:

1. How well does the tertiary education system actually produce expected outcomes at the current time (system performance)?
2. How well do the tertiary education system's key inputs, processes and enabling factors reflect conditions that are known to bring about favourable outcomes?

Furthermore, the benchmarking tool allows users to evaluate 'system evolution' or speed of change of performance and health indicators.

System performance

System performance can be measured by looking at the key outcomes of a tertiary education system. Reflecting the various missions of tertiary education, the benchmarking tool includes the following outcomes:

- *Attainment* refers to the stock of qualifications in a given population, measured by calculating the proportion of adults in the working age population who have completed a tertiary degree.
- *Learning achievement* refers to the quality and relevance of the education and training experience of tertiary level graduates. This is one of the most difficult areas to measure in the absence of widely accepted metrics such as PISA or TIMSS.
- *Equity* refers to disparities in the results (attainment and academic trajectories) of disadvantaged groups (such as low-income groups, females, minorities and people with disabilities).

- *Research* outcomes refer to publications and advanced training, measured by the number of scientific journal citations relative to a country's population and the capacity of the system to prepare PhD graduates.
- *Knowledge and technology transfer* represent the contribution of tertiary education institutions to the development of the regions that they serve. Some ways to measure this include the number of patents registered by universities or the proportion of doctoral graduates working outside universities.
- *Values, behaviour and attitudes* refer to the effectiveness of tertiary education in equipping graduates with positive values and citizenship skills. This is also a very difficult area to measure, but the methodological challenges do not justify neglecting this important dimension of the role of education.

Examples of performance indicators would be:

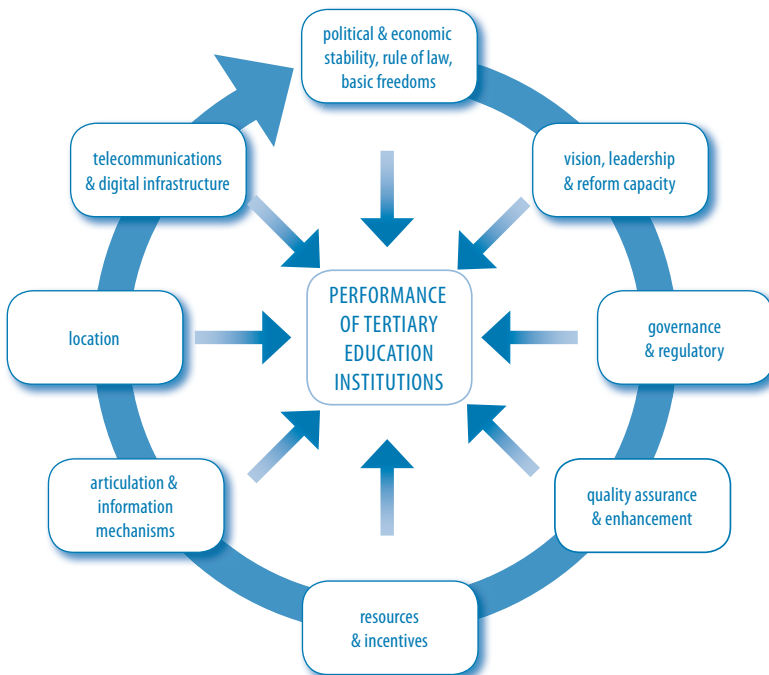
Attainment	proportion of the working-age population (25-64) with a tertiary degree
Achievement gap	proportion from highest quintile over proportion from lowest quintile
Quality	number of ranked universities per 100,000 inhabitants
Research output	number of citations per 100,000 inhabitants
Technology Transfer	number of patents per 100,000 inhabitants
Values	proportion of voting age people who actually vote

System health

System health refers to the enabling conditions required for the tertiary system to produce these outcomes, and to improve and sustain its performance over time. As Figure 5 below illustrates, these institutions operate in an environment that includes the following elements:

- *Macro environment*: the overall political and economic situation of a country, together with the rule of law and the enforcement of basic freedoms, which influences the governance of tertiary education institutions (the appointment of university leaders), their level of funding, their academic freedom and safety in the physical environment.
- *Leadership at the national level*: the existence of a vision and a strategic plan to shape the future of tertiary education and the capacity to implement reforms.
- *Governance and regulatory framework*: the governance structure and processes at the national and institutional levels that determine the degree of autonomy that tertiary education institutions enjoy and how and to what extent they are held accountable. This is especially important for the human resources policies and management practices that allow tertiary education institutions to attract and keep qualified academics.
- *Quality assurance framework*: the institutional setup and the instruments for assessing and enhancing the quality of research, teaching and learning.
- *Financial resources and incentives*: the absolute volume of resources available to finance tertiary education (mobilization of both public and private resources) and the way in which these resources are allocated to various institutions.
- *Articulation and information mechanisms*: the linkages and bridges between high schools and tertiary education and among the various types of tertiary education institutions, all of which affect the academic characteristics of incoming students and their academic results within the tertiary education system.
- *Location*: the infrastructure and the economic, social and cultural characteristics of the geographical location of the institution, which determine its ability to attract outstanding scholars and talented students.
- *Digital and telecommunications infrastructure*: the availability of broadband connectivity and end user devices to enable tertiary education institutions to deliver educational, research and administrative services in an efficient, reliable and affordable way.

Figure 5. Tertiary education ecosystem

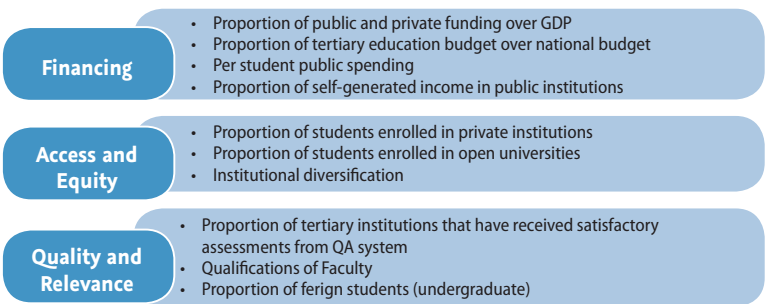


Source: the author.

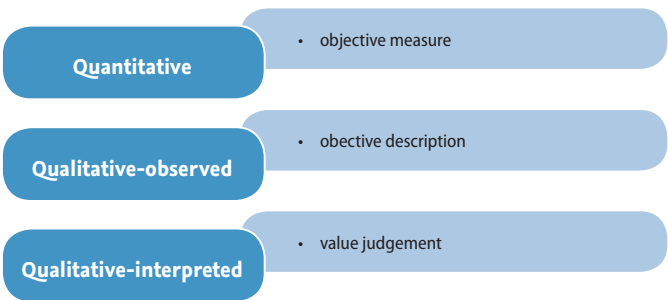
This analytical framework translates into specific inputs and process indicators that measure ‘system health’ in the following way:

- *Inputs.* To what extent do the resources invested in a tertiary system (such as its funding, the number and qualifications of its academics, the academic preparation of its incoming students, its curriculum and its learning infrastructure) lead to positive outcomes?
- *Processes.* How effective are a system’s processes or policies (such as its governance arrangements, resource allocation mechanisms and accountability instruments) in producing positive outcomes?

Examples of system health indicators are identified in the diagram below.



The benchmarking of tertiary education systems relies on three types of indicators: quantitative indicators, objective qualitative indicators and subjective qualitative indicators.



Quantitative indicators provide the user with a tangible measure to compare performance across various dimensions of country systems and institutions. Data for these indicators are relatively easier to collect than qualitative data. Thus, there are fewer gaps in the dataset for this group of indicators. Examples of such indicators include tertiary attainment rate, or research output (number of citations per 100,000 inhabitants).

Objective qualitative indicators describe key dimensions of system health in a non-numeric way. For example, in the area of governance and quality assurance, qualitative indicators can capture the main characteristic of tertiary education systems and institutions in an objective manner (e.g. existence of an independent board, mode of selection of university leaders, existence of an accreditation system, etc.).

Subjective qualitative indicators are constructed on the basis of expert judgments on key dimensions of system health. For example, one of the important drivers of system health is the degree of management autonomy that tertiary education institutions enjoy, which is difficult to measure objectively.

The proposed approach is informed by the following recent works, which explore various dimensions of the performance of tertiary education systems and institutions and try to identify key determinants of this performance:

- *Constructing Knowledge Societies: New Challenges for Tertiary Education*, a World Bank (2002) report outlining key trends in tertiary education, analysing their implications in terms of shaping and operating tertiary education systems and institutions, and presenting policy reform options.
- *Tertiary Education for the Knowledge Society*, a three-volume OECD (2008) report presenting the lessons learned after fourteen reviews of tertiary education in member countries, with a focus on access and equity, quality, the academic profession, labour market linkages, governance, financing, internationalization, and the role of higher education in research and innovation.
- *Creating an assessment tool and index to guide countries in enhancing their competitiveness through improved education systems*, a McKinsey (2007) study prepared exclusively for the World Bank, proposing a methodology for the development of a benchmarking tool to measure the results of education systems.
- *The Governance and Performance of Research Universities: Evidence from Europe and the U.S.* (Aghion et al., 2009) a comparative analysis of European and US universities showing that, beside the level of public funding and degree of management autonomy, the weak development of competitive funding mechanisms is one of the major differences explaining the lower performance of European research universities in international rankings.
- *The Challenge of Establishing World-Class Universities* (Salmi, 2009), which analyses the characteristics of elite research universities and explores approaches for establishing successful institutions that are recognized globally.

Comparing Brazil and Chile’s expansion paths

In order to illustrate how the benchmarking tool can be used, this section looks at the determinants of enrolment growth by comparing Brazil and Chile. As analysed in *Constructing Knowledge Societies: New Challenges for Tertiary Education* (World Bank, 2002), the main factors that account for a country’s tertiary level enrolment and the tertiary education attainment of the adult population are: (i) graduation levels at the end of secondary education, (ii) the level of investment in tertiary education (public and private funding), (iii) the degree of institutional diversification (types of institution and development of the private sector), and (iv) the proportion of public funding allocated to student aid. The relationship between these variables can be represented in the form of an equation:

$$f[S_{Gi}, T_{Fi}, (\sum E_{ij}), P_{Si}, S_{Ai}]$$

where
SGi = High school graduation rate
TFi = Total funding for tertiary education
PSi = Proportion of private sector enrolment
Eij = Distribution of enrolment among various types j of tertiary education institutions
SAi = Student aid

The following indicators are relied upon to measure these various dimensions:

- The secondary school completion rate measures the proportion of the population 15 years and over that has successfully completed high school. This indicator provides a strong signal of the potential demand for tertiary education.
- Total funding for tertiary education reflects the level of public commitment to tertiary education, as well as the success of resource mobilization efforts (cost-sharing, donations, research, consultancy and training contracts, etc.).
- The share of private enrolment complements the previous indicator. Reflecting the proportion of students enrolled in institutions not operated by a public provider, it indicates the share of enrolment expansion that is taking place without bearing on the public purse in terms of investment and operation costs.

- The indicator measuring the proportion of students enrolled in non-university institutions (short duration vocational institutions, open universities, polytechnics, etc.) reflects the diversity of institutions in a country's tertiary education system and the capacity to expand enrolment in programmes and institutions whose cost is lower than that of traditional research universities. Enrolment levels in ISCED 5B are taken as a proxy for enrolment in non-university institutions.
- The last indicator measures the proportion of public spending allocated to student aid (loans and grants). In countries with high levels of cost sharing in public tertiary education and/or a well-developed private sector, the availability of financial aid is important from an equity viewpoint. It limits or facilitates the access and success of low-income students to tertiary education.

To provide a starting point for the comparison of Chile and Brazil, it is important to first assess their relative performance on attainment rates. As shown in Figures 6 and 7 depicting the growth in attainment rates at the primary, secondary and tertiary levels, Chile has made greater gains in secondary and tertiary enrolment from 1980 onwards. In 2010, Chile had tertiary attainment rates of 11.6 per cent for the population aged 25–65 years of age, while Brazil had just 5.6 per cent for the same age group.

Figure 6. Attainment rates in Brazil

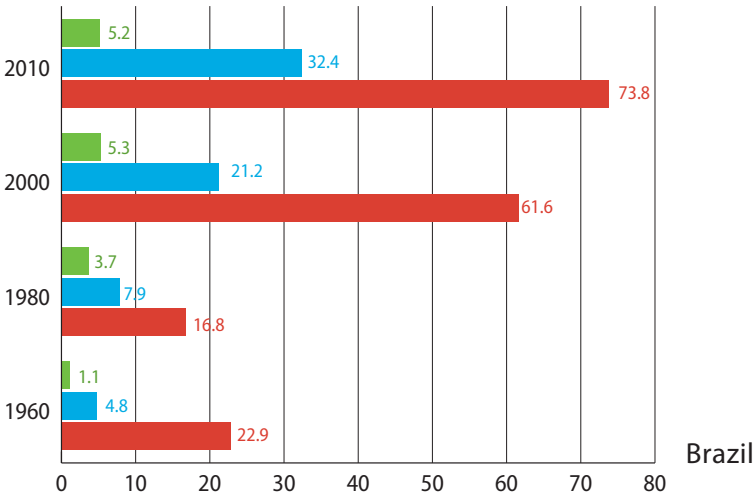
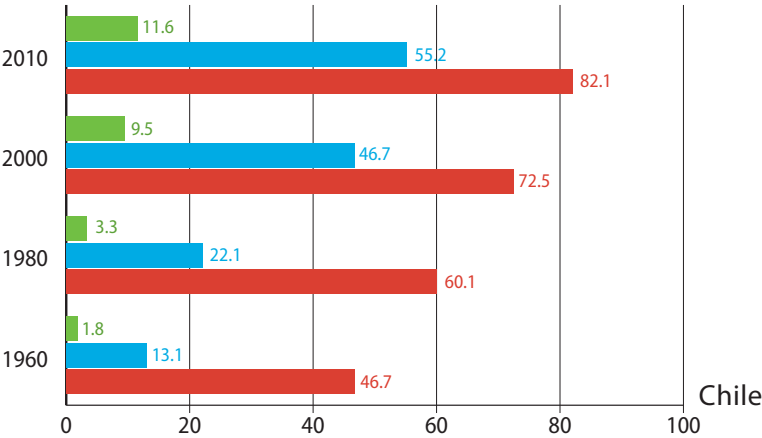


Figure 7. Attainment rates in Chile

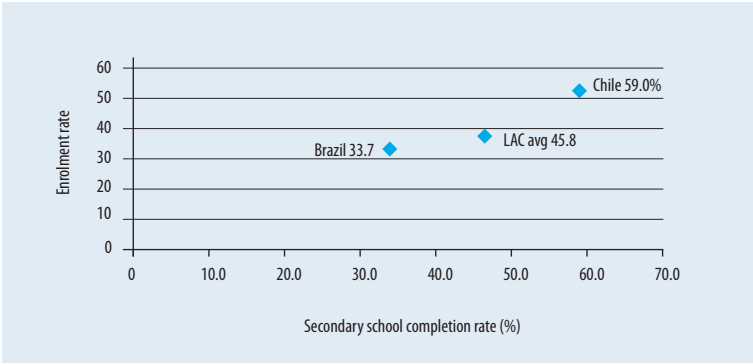


Note: Code: green = share of adult population that has completed tertiary education
blue = share of adult population that has completed secondary education
red = share of adult population that has completed primary education

Source: Barro and Lee.

Figure 8 below can help explain why Chile has a higher tertiary enrolment rate. As seen here, the stock of candidates eligible to enter post-secondary studies is much greater. Chile has a 55 per cent completion rate of secondary school in 2010, while Brazil has about a 32 per cent completion rate.

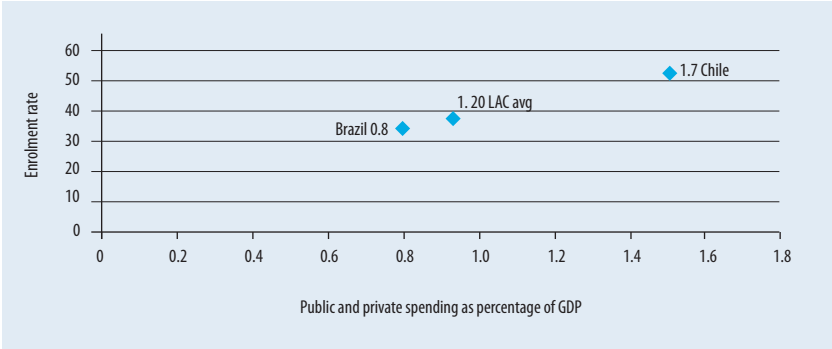
Figure 8. Secondary school completion rates in Brazil and Chile, 2010



Source: Barro and Lee (2010).

Figure 9 shows the greater investment in tertiary education made by Chile as compared to Brazil. This is due to the fact that Chile has been able to mobilize a much higher share of private investment through both cost-sharing in public universities and rapid expansion of private tertiary education, even though Brazil spends much more public money on tertiary education. Overall, public and private investments in tertiary education amount to about 1.8 per cent of GDP in Chile, while those of Brazil are less than half that at about 0.7 per cent of GDP.

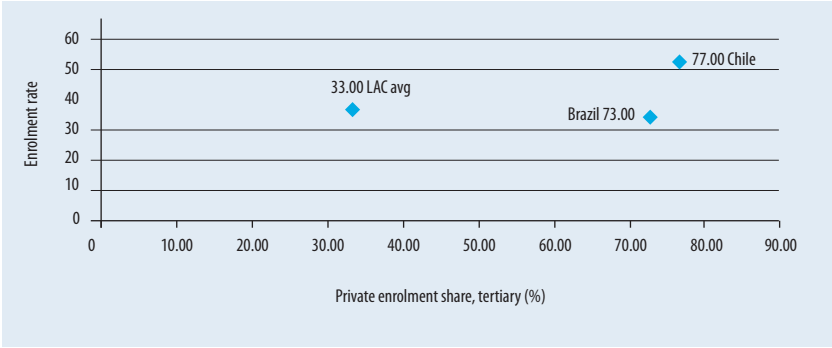
Figure 9. Total investment in tertiary education in Brazil and Chile, 2007



Source: OECD (2009).

Figure 10 shows that private enrolment share of both Brazil and Chile are comparable. The LAC average primary enrolment is significantly lower than these countries at around 30 per cent. Both Brazil and Chile have used enrolment in private institutions as a key element of their expansion strategy.

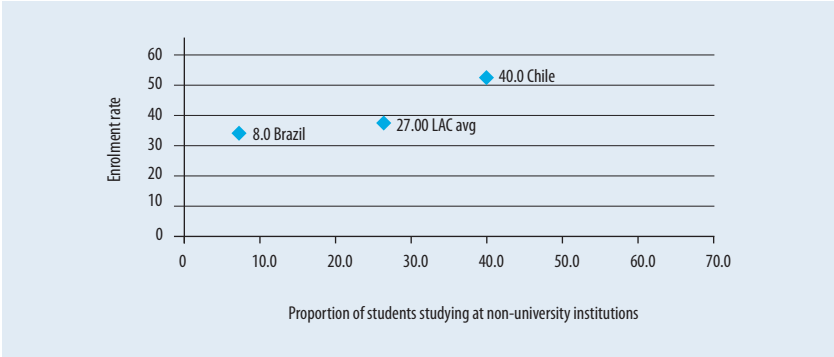
Figure 10. Private enrolment in Brazil and Chile, 2007



Source: UIS (2007).

Differentiation is a key indicator of system health. This indicator measures the proportion of students studying at non-university institutions such as community colleges, open education institutions or distance learning programmes. Figure 11 shows that 40 per cent of the students enrolled in tertiary education in Chile are studying in non-university institutions, while less than 10 per cent of those in Brazil are attending these types of institutions. One can infer then, that part of the reason for Chile's higher enrolment rate is due to the range of learning opportunities it provides to high school graduates compared to those available in Brazil.

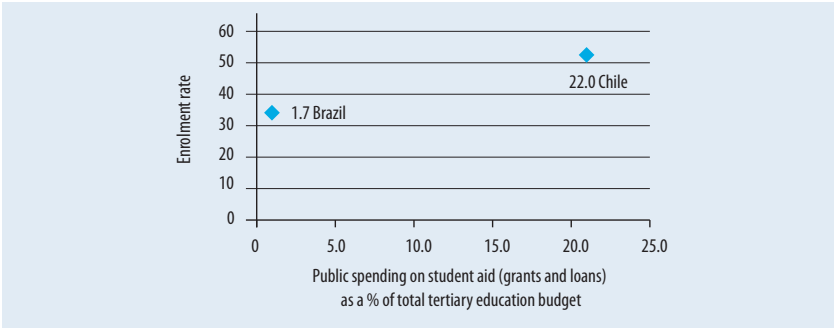
Figure 11. Enrolment in non-university institutions in Brazil and Chile, 2007



Source: UIS (2007).

Finally, Figure 12 emphasizes the distinct difference in access to financial aid that students seeking to enroll in tertiary education face in each country. The Chilean government allocates about 23 per cent of tertiary education related public spending to student aid (grants plus loans), while the Brazilian government provides just 2 per cent of its spending to this end.

Figure 12. Financial aid in Brazil and Chile, 2007



Source: OECD (2009).

As shown through this case study of Brazil and Chile, benchmarking provides a baseline from which the impact and effectiveness of various policies can be evaluated. Comparing indicators across countries offers a time-sensitive measure of performance improvement or degradation and can be used to ascertain policy options, inform decision-making and guide resource allocation.

Conclusion

The world is interested in rankings in every walk of life. Countries are ranked for their performance in all possible domains, from the Olympics to the quality of life. It is not surprising then, that in the present tertiary education world characterized by increased global competition for talented academics and students, the number of league tables of universities has grown rapidly in recent years.

The stakes are high. Governments and the public at large are ever more pre-occupied with the relative performance of tertiary education institutions and getting the best-perceived value as consumers of education. Some countries are striving to establish 'world-class universities' that will spearhead the development of a knowledge-based economy. Others, faced with a shrinking student population, struggle to attract increasing numbers of fee-paying foreign students. Just as scarcity, prestige, and having access to 'the best' increasingly mark the purchase of goods such as cars, handbags and blue jeans, the consumers of tertiary education are also looking for indicators that enhance their capacity to identify and access the best universities.

At the same time, these rankings are insufficient to measure the actual performance of entire tertiary education systems. Beyond the results of individual universities, it is important to be able to assess how a country is faring along key dimensions of performance at the tertiary level such as access and equity, quality and relevance, research productivity and technology transfer. The benchmarking tool that the World Bank is in the process of developing seeks to fulfill this role, by offering a web-based instrument that policy-makers can use to make comparisons across countries on the variables and indicators of their choice. While the tool is not meant to give policy prescriptions, it should provide a platform for facilitating diagnosis exercises and the exploration of alternative scenarios for reforming and developing tertiary education.

Note

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Chapter 14

U-Multirank: a user-driven
and multi-dimensional
ranking tool in global
higher education and
research

Frans van Vught and Frank Ziegele

Introduction

The U-Multirank project¹ encompassed the design and testing of a new transparency tool for higher education and research. More specifically, the focus was on a transparency tool to enhance understanding of the multiple performances of different higher education and research institutions across the diverse range of activities they are involved in.

Transparency is of major importance for higher education and research worldwide, which is increasingly expected to make a crucial contribution to the innovation and growth strategies of nations around the globe. Obtaining valid information on higher education within and across national borders is critical in this regard, yet higher education and research systems are becoming more complex and – at first sight – less intelligible for many stake-holders. The more complex higher education systems become, the more sophisticated transparency tools need to be. Sophisticated tools can be designed in such a way that they are user-friendly and can cater to the different needs of a wide variety of stakeholders.

Various types of transparency tools with different purposes exist, in particular at the national level, but also at the international or even global level. These include classifications, rankings/league tables, various benchmarking instruments, and the outcomes of quality assurance and accreditation processes. The U-Multirank project included a comprehensive analysis of these different transparency instruments, the contribution they can potentially make to our understanding of the diversity of higher education institutions and their programmes, their possible positive and negative effects, and the value of the information they provide. The conclusions, in particular, regarding worldwide rankings, are:

- Existing rankings largely focus on only one or very few dimensions of the broad spectrum of functions of higher education and research institutions – primarily the research function.

1 The project 'U-Multirank' has been funded with the support of the European Commission. This chapter reflects the views of the authors and the Commission cannot be held responsible for any use that may be made of the information therein. For more information on the project, see: www.u-multirank.eu. This chapter uses results and conclusions from the final report of the project (http://ec.europa.eu/education/higher-education/doc/multirank_en.pdf) and from a recently published book: F. van Vught and F. Ziegele (eds), *Multi-dimensional Ranking, the Design and Development of U-Multirank*, Dordrecht: Springer, 2012.

- Existing rankings appear to have a negative effect on the diversity of higher education systems; because of their preoccupation with research they tend to stimulate imitative behaviour on the part of institutions that is directed towards one single profile: the large, comprehensive, internationally orientated research university. This ‘world-class university’ thus becomes synonymous with ‘top research university’ and in the end with ‘top university’ in general, at the expense of other important higher education activities, dimensions of performance and successful organizational models.
- In their selection of indicators existing rankings appear to focus on what is easily measurable, rather than on what is relevant for reflecting performance across the diverse functions of higher education.
- Existing global rankings do not respond adequately to the differing information needs of different stakeholders.
- Existing rankings suffer from several methodological flaws:
 - The use of composite indicators can blur differences in performance across particular dimensions and indicators.
 - The league table approach tends to exaggerate differences between universities (‘number 57 is better than number 61’). Small differences in the numerical scores of the indicators can lead to relatively large yet unavoidable differences in league table position.
 - Where rankings focus only on the level of the institution as a whole, they ignore differences in performance across different disciplinary fields within the institution. Averages across fields are of little use to many users and can be highly misleading.
 - Their bibliometric analyses of publications and citations are not sufficiently sensitive to varying publication and citation cultures across different disciplinary fields.
 - They do not take into account major contextual differences between higher education systems (languages, cultures and varying regulatory frameworks).
 - They often suffer from non-transparent, unspecified and volatile procedures in terms of indicator construction, calculation and aggregation.
- Existing rankings appear to have triggered a ‘reputation race’ in higher education and research worldwide, stimulating politicians, policy-makers and university leaders to make a range of policy choices and major investments specifically designed to achieve a higher ranked position for

their institutions in the league tables with prejudicial effects on other important areas of potential improved performance.

- The relative position of institutions on existing rankings appears to contribute to increasing levels of resource inequality between institutions, as ‘successful’ institutions are able to generate additional resources on the basis of their position in the rankings and thus achieve further success. This pattern further expands academic performance gaps between institutions and adds reputational and resource fuel to academic stratification processes.
- The current rankings have been shown to trigger strategic behaviour by institutions by providing incentives for them to ‘game the results’ by boosting their scores on particular indicators.

Despite the serious critique of existing rankings – and particularly the major global rankings – outlined above, our comprehensive review of the current situation found a number of important examples of good practice that we have carried forward into the design of a new transparency instrument. These include:

- A group of experts and organizations engaged in producing or researching rankings developed a set of basic principles for good practice, the *Berlin Principles on Ranking of Higher Education Institutions* (International Ranking Expert Group, 2006). The principles refer to four aspects of rankings: the purposes and goals of rankings, the design and weight of indicators, the collection and processing of data and the presentation of ranking results. We have incorporated these into our design of a new instrument.
- In the area of transparency tools meant to provide relevant information to (prospective) students, alternatives to the league table approach have been developed. The rankings published by the CHE and the Dutch ‘Studychoice 123’ are leading European examples. The main principles underlying this type of ranking include the following:
 - Definition of students as the primary stakeholder target group and an explicit focus on aiding prospective students to find the study programmes best matching their aims and needs;
 - Ranking single disciplines or subject areas rather than calculating averages for entire higher education institutions;
 - Multi-dimensional rankings that are interactively presented so that end-users may decide which indicators are most important to

- them, supported by web-based technologies allowing interactive, personalized ranking; and
 - A robust division of indicator scores into top – middle – bottom groupings for each indicator, rather than a presentation in league tables with the spurious precision of ranking from position 1 to n .
- The Centre for Science and Technology Studies (CWTS) of Leiden University publishes a ranking aiming at comparison of research performance with impact measures that take the differences in institutions and disciplines into account. On the basis of the same publication and citation data, different types of impact-indicators can be constructed, for instance, one in which the size of the institution is taken into account. (Rankings are strongly influenced by the size-threshold used to define the set of universities for which the ranking is calculated. Smaller universities that are not present in the top 100 in size may take high positions in impact ranking if the size threshold is lowered.) A major advantage compared to other global rankings is the use of field-normalized citation rates that control for different citation cultures in different fields. CWTS has also started to develop new bibliometric methods allowing a link between publications and the dimensions of regional engagement, internationalization and knowledge transfer by analysing regional, international and university-industry co-publications. All of these developments have been included in U-Multirank allowing it to progress beyond existing rankings in the methods of bibliometric research performance measurement.

Our analysis suggests that an enhanced understanding of diversity in the profiles and performances of higher education and research institutions at a national, European and global level requires a new ranking tool that addresses most of the major shortcomings of existing ranking instruments but incorporates good practices – such as those outlined above – developed in recent years. The next section describes how this instrument – U-Multirank – was designed.

Design principles

Based on our analyses of existing transparency instruments and on clear epistemological and methodological principles we formulated a set of design principles for U-Multirank:

- Our most fundamental epistemological argument is that as all observations of reality are theory-driven (formed by conceptual systems), an 'objective

ranking' cannot be developed. Every ranking will reflect the normative design and selection criteria of its constructors.

- Given this epistemological argument, our position is that rankings should be based on the interests and priorities of their users: rankings should be *user-driven*. This principle 'democratizes' the world of rankings by empowering potential users (or categories of users) to be the dominant actors in the design and application of rankings rather than rankings being restricted to the normative positions of a small group of constructors. Different users and stakeholders should be able to construct different sorts of rankings. (This is one of the *Berlin Principles*.)
- Our second principle is *multi-dimensionality*. As indicated earlier in this overview, higher education and research institutions are predominantly multi-purpose, multiple-mission organizations undertaking different mixes of activities. (Teaching and learning, research, knowledge exchange, regional engagement and internationalization are five major categories that we have identified.) Rankings should reflect this multiplicity of functions and not focus on one function (research) to the virtual exclusion of all else.
- The next design principle is *comparability of institutions*. In rankings, institutions and programmes should only be compared when their purposes and activity profiles are sufficiently similar. Comparing institutions and programmes that have very different purposes is worthless. It makes no sense to compare the research performance of a major metropolitan research university with that of a remotely located University of Applied Science, or the internationalization achievements of a national humanities college whose major purpose is to develop and preserve its unique national language with an internationally orientated European university with branch campuses in Asia. This principle also derives from the need to make the diversity of higher education institutions' 'performance profiles' transparent. In our view the principle implies a two-step-process: first, institutions with similar profiles have to be identified by 'mapping' their activities. A ranking of these institutions can only be applied afterwards. This is a completely new approach to international and national rankings. It connects the description of horizontal diversity of activity profiles to the assessment of vertical diversity of performance profiles.
- The fourth principle is that higher education rankings should reflect the *multi-level nature of higher education*. With very few exceptions, higher education institutions are combinations of stronger and less-strong

faculties, departments and programmes. Producing only aggregated institutional rankings disguises this reality and does not produce the information most valued by major groups of stakeholders: students, potential students, their families, academic staff and professional organizations. This does not mean that institutional level focused rankings are not valuable to other stakeholders and for particular purposes. The new instrument should allow for the comparisons of comparable institutions at the level of the organization as a whole and also at the level of the broad disciplinary fields in which they are active.

- Finally we include the principle of *methodological soundness*. The new instrument should refrain from methodological mistakes such as the use of composite indicators, the production of league tables and the denial of contextuality. In addition it should minimize the incentives for strategic behaviour on the part of institutions to ‘game the results’.

Conceptualization

These design principles have underpinned the conceptualization of a new ranking instrument that is user-driven, multi-dimensional and methodologically robust. This new instrument must enable its users to identify institutions and programmes that are sufficiently comparable (through U-Map) and to undertake both institutional and field level performance analyses.

In operational terms U-Multirank consists of:

- Five *performance dimensions* (teaching and learning, research, knowledge transfer, international orientation, regional engagement).
- A range of *indicators* that are used to compare institutional performance on these five dimensions at the institutional and/or field level.

The selection of these dimensions and indicators has been based on two processes:

- *Stakeholder consultation process*: a strong stakeholder orientation has been a cornerstone of our approach given the centrality of the principle of rankings being user-driven. Our intensive process of stakeholder consultation focused primarily on the relevance of potential dimensions and indicators as the starting point for rankings (see also the Berlin Principles).

- *Methodological analysis* of the validity of the indicators, the reliability of the information to be gathered, and the expected feasibility of the use of the dimensions and indicators (availability of data; the extent of extra data collection required from institutions).

During the design process all potential dimensions and indicators were clearly described and discussed in stakeholder workshops. After a first validity and reliability check, we suggested comprehensive lists of possible indicators derived from the literature and from existing practice (including from areas beyond rankings). In addition, we designed a number of new, sophisticated indicators, particularly bibliometric indicators for the research dimension.

We asked stakeholders in an iterative process to assess the relevance of these indicators. The outcomes of this process were then integrated with the results of our methodological analysis to produce the set of indicators to be included in the empirical pilot study. On the basis of the pilot study some indicators were discarded and others earmarked for further development. The full list of dimensions and indicators can be found in Appendix 1 of this paper.

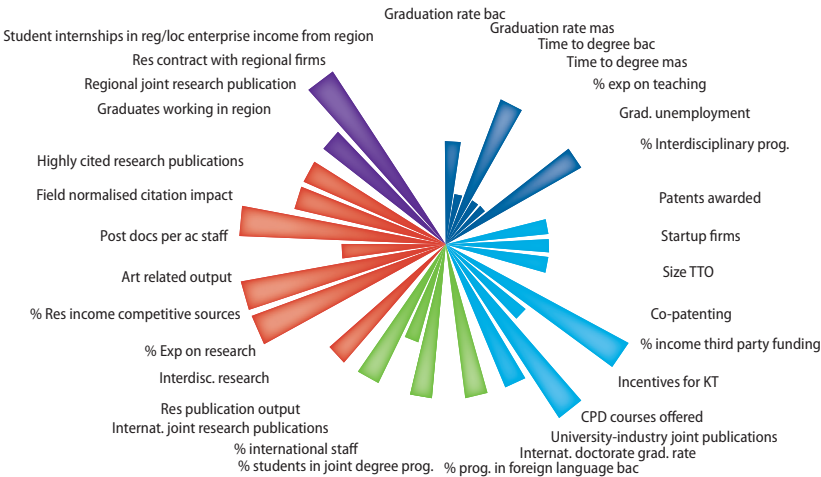
On the basis of data gathered on these indicators across the five performance dimensions, U-Multirank could provide its users with the online functionality to create two general types of rankings:

- *Focused institutional rankings*: rankings on the indicators of the five performance dimensions at the level of institutions as a whole; and
- *Field-based rankings*: rankings on the indicators of the five performance dimensions in a specific field in which institutions are active.

A multidimensional ranking is inevitably more complex than publishing a simple league table. This raises the issue of user-friendliness: presentation modes should allow users to digest the information provided in a multidimensional ranking. Not only the information needs of expert users such as political or institutional decision-makers should be taken into account; the information should also be easily accessible to 'lay' users like parents or students.

A number of presentation modes were discussed and developed for U-Multirank. For example, it allows users to create institutional and field performance profiles by including (not aggregating) the indicators within the five dimensions (or a selection of them) into a multi-dimensional performance chart. At the institutional level these take the form of 'sunburst charts' (see Figure 1) while at the field level these are structured as 'field-tables' (see Table 1).

Figure 1. Sunburst representation of an institutional performance profile



Source: the authors.

In the sunburst charts, the performance on all indicators at the institutional level is represented by the size of the rays of the ‘sun’: a larger ray means a higher performance on that indicator. The colour of a ray reflects the dimension to which it belongs. The sunburst chart gives an impression ‘at a glance’ of the performance of an institution, without unwarranted aggregation of information into composite indicators.

Table 1. Performance at the field level

	Teaching & Learning			Research			Knowledge transfer			International orientation			Regional engagement		
	Student staff ratio	Graduation rate	Qualification of academic staff	Research publication output	External research income	Citation index	% income third party funding	CPD courses offered	Startup firms	International academic staff	% international students	Joint international publ.	Graduates working in the region	Student internship in	Regional co-publication
Institution 4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Institution 8	●	●	●	●	-	●	●	●	●	●	●	-	●	●	●
Institution 3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Institution 5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-
Institution 1	●	-	-	●	●	●	●	●	●	●	●	●	●	●	●
Institution 9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Institution 7	●	●	●	●	-	●	●	-	●	-	●	●	●	●	●
Institution 2	●	●	●	●	●	●	-	●	●	●	●	●	●	●	●
Institution 6	●	●	●	●	-	●	●	●	●	●	●	●	●	●	●

Source: the authors.

In the field-based table, relative a coloured circle indicates performance. A green circle indicates that the score of the institution on that indicator is in the top group, a red circle indicates that the performance is in the bottom group, and a yellow circle means that performance is somewhere in the middle. The score on the student–staff ratio of the field at institution 4 is in the top group, whereas the field in institution 2 has a relatively poor score on this indicator. The user may sort the institutions on all of the indicators presented. In addition, the users are given the opportunity to choose the indicators on which they want to rank the institutions selected. This personalized, interactive ranking table reflects the user driven nature of U-Multirank.

In order to be able to apply the principle of comparability we have integrated an existing transparency tool – the U-Map classification – into U-Multirank. U-Map has been designed, tested and is now being implemented through a series of projects supported by the European Commission. It is a user-driven higher education mapping tool that allows users to select comparable institutions on the basis of ‘activity profiles’ generated by the U-Map tool. These activity profiles reflect the diverse activities of different higher education and research organizations using a set of dimensions similar to those developed in U-Multirank. The underlying indicators differ as U-Map is concerned with understanding the mix of activities an institution is engaged in (*what it does*), while U-Multirank is concerned with an institution’s performance in these activities (*how well it does what it does*). Integrating U-Map into U-Multirank enables the creation of user-selected groups of sufficiently comparable institutions that can then be compared in focused institutional or field-based rankings.

The user-driven approach has an important implication for the U-Multirank concept: in particular, it should be noted that U-Multirank is a database accessible via an internet tool producing user-driven rankings; it is not the publication of one specific ranking list.

The pilot study

With the initial design phase completed, the next step was to test the empirical feasibility of U-Multirank with a global sample of higher education and research institutions. This pilot test included three clusters of activities.

1. Establishing the pilot sample of institutions

The intention of the project was to test the feasibility of the multi-dimensional ranking on an initial group of 150 institutions drawn from Europe and beyond. In most cases institutions needed to be active in one or both of the fields of (mechanical and electrical) engineering and business that were identified as the pilot disciplines for the field-based rankings. Institutions also needed to be chosen to ensure that the diversity of institutions in participating countries was represented to the extent possible in the initial pilot group.

We used a number of mechanisms to establish the pilot group: 316 institutions were invited to participate and 166 drawn from 57 countries agreed to do so after interaction with the project team (8 subsequently withdrew). In some countries (including China and the United States), special efforts were made to encourage institutions to participate (see Table 2).

Table 2. Invited and participating institutions by region and country

Regional participation	No. institutions invited	No. institutions accepted	% institutions accepted (of total invitations)	No. completed institutional questionnaires	% completed institutional questionnaires (of total acceptances)
Europe – EU	165	94	57%	75	80%
Europe – non-EU	27	15	56%	12	80%
United States	28	4	18%	1	20%
Canada	7	3	43%	1	33%
Japan	9	2	22%	2	100%
China	18	2	12%	1	50%
Other Asia	6	6	100%	3	57%
Australia	11	7	64%	6	86%
India	12	4	33%	2	50%
Africa	8	6	75%	1	17%
Latin America	10	4	40%	4	100%
Middle East	15	12	80%	7	58%
Total	316	159	50%	115	72%

Source: the authors.

2. Developing the data-gathering instruments

Our analysis of potential indicators in the design phase showed that most of the required data would need to be gathered at the institutional level as national and international databases included very little of the information we needed (bibliometric and patent databases were the two exceptions), or did not provide comparable data. Four online survey instruments were therefore designed to gather information:

- an online questionnaire (already designed and tested) to provide the information needed to develop an institutional profile for each institution within the U-Map classification;
- a second online questionnaire to provide information on the indicators selected to measure the five performance dimensions at the institutional level;
- a third online questionnaire for those institutions/faculties active in the pilot fields of engineering and/or business to gather the information on the indicators selected to measure the five performance dimensions for the field-based rankings; and
- a fourth online survey for a sample of students studying in the selected fields to collect the information needed for a range of 'student satisfaction' indicators used in the field-based ranking.

The last three questionnaires were pre-tested on a small sample of participating institutions before being rolled out to the full group of pilot institutions.

3. Organization of the pilot test

There were complex communication and logistical challenges involved in a pilot test involving more than 150 institutions, three fields, 50 countries and thousands of student questionnaires. The systems and processes that were developed included the online surveys themselves; the U-Multirank website; secure databases; access code systems; data glossaries; FAQ and help desk services; general communication flows with participating institutions; and data cleaning and checking protocols and procedures. All these systems and processes have been tested and are available for the further implementation of U-Multirank.

The pilot study data collection phase started in November 2010 and closed at the end of March 2011. One hundred and nine higher education institutions completed both the U-Map and institutional questionnaires; 83 of

these institutions also completed field level questionnaires (165 in total: 57 in Business, 50 in Mechanical Engineering and 58 in Electrical Engineering). The analysis included 5,901 valid completed student questionnaires (from a gross response of around 6,700).

The outcomes

The major objectives of the project were to develop an alternative to existing global rankings, to avoid their problems and to test if such an instrument is feasible. Our general conclusions from the two-years' project work are:

- The concept of a multidimensional, multilevel and user-driven ranking is indeed an alternative that avoids the shortcomings of existing rankings.
- The new multidimensional ranking instrument is feasible.
- The required operative tools such as indicator definitions, questionnaires, data collection processes, databases, data quality check procedures and presentation modes have been developed in a '1.0 version' of U-Multirank.
- There are some clear issues where further steps have to be taken in order to even enhance the feasibility of the new instrument and to move to the phase of the implementation of U-Multirank.

The *empirical feasibility* of U-Multirank as a new transparency instrument in higher education and research was assessed along three different lines:

- First, the feasibility of the dimensions and indicators themselves in terms of data availability, conceptual clarity and data consistency. This was assessed from an analysis of the data submitted via the different questionnaires, from comments made within the questionnaires by respondents, and from a brief survey of participating institutions.
- Second, the feasibility in terms of generating a sufficient critical mass of institutional interest at European and global levels to make U-Multirank a viable instrument.
- Third, the feasibility of scaling-up a pilot project of 150 institutions to one including ten or twenty times that number; and extending its field coverage from three to around fifteen major disciplinary fields.

Our analysis of the *feasibility of the dimensions and indicators* themselves in terms of data availability, conceptual clarity and data consistency was very positive, as is evident in Table 3. Table 3 shows the total number of

indicators tested (including field-based and institutional indicators) and presents for each dimension the percentage of tested indicators proved to be unproblematic (category A), the percentage that should be kept but needs further work and refinement (B), and the percentage of indicators that was discarded in the final set (C). The feasibility test proved that all indicators can be maintained in the dimension teaching and learning, with 39 per cent of the indicators needing further work – no indicator had to be excluded. In the dimensions research and international orientation the outcome is similar, with only one research indicator excluded.

In two dimensions (knowledge transfer and regional engagement) and with some concepts (e.g. graduate employability and non-traditional research output), feasible indicators are more difficult to develop. Knowledge transfer is the dimension with the most discarded indicators. Less than one-third of the indicators can be used in the current form and four indicators were excluded for the field level: patents awarded, co-patenting, annual income from licensing and number of licensing agreements. In the regional engagement dimension, the majority of indicators need modifications. In this dimension two indicators could not be taken into account due to availability of data: regional participation in continuing education and summer schools. To summarize, it is not surprising that the problematic dimensions and concepts cover the areas of higher education and research performance hardly explored by existing rankings. But still U-Multirank goes beyond the scope of indicators implemented in existing worldwide rankings in all its dimensions. The revised set of the U-Multirank indicators can be found in Appendix 1.

Table 3. Overview of results of indicator feasibility analyses

Dimension	Total no. of indicators tested	Assessment of indicators after pilot		
		A: % of indicators needing no/minor modification	B: % of indicators needing further work	C: % of indicators discarded
Teaching and learning	23	61%	39%	0%
Research	16	56%	38%	6%
Knowledge transfer	15	27%	47%	27%
International orientation	16	68%	31%	0%
Regional engagement	11	18%	64%	18%
Total	81	49%	42%	9%

The decisions about whether to retain or discard indicators where difficulties were experienced in the pilot study were made in consultation with stakeholders. These decisions can be illustrated by a few examples:

- Although there were problems with the availability of employability-related indicators in the dimension ‘Teaching and learning’, it was decided to retain these as they cover a highly relevant aspect. Retaining them underlines their importance and encourages institutions and national and international data agencies to pay greater attention to these indicators and to invest in data collection efforts.
- ‘International prizes won’ was discarded as an indicator as there was little agreement on the list of prizes to be included.
- The feasibility problems with the indicators on regional engagement are partly related to a lack of consistent and comparable definitions underlying the data and partly because of lack of available information. Nevertheless it was decided to retain the indicators for further development as they potentially add clear value to U-Multirank.

The pilot test demonstrated that multidimensional and multi-level ranking is certainly possible in terms of the development of feasible and relevant indicators. It also showed priority areas for further refinement of indicators. Furthermore, the pilot test proved the virtues of multidimensionality: no university in the sample performed in the same group in all dimensions and indicators. On the contrary, institutions showed specific strengths and weaknesses in a differentiated performance picture. Without multidimensionality this would be hidden behind a composite indicator. In traditional rankings focusing on research performance, only the ‘basic research-oriented, world-class university’ is able to succeed. U-Multirank is able to identify universities with excellence and a specific strategic profile in one or more of the other dimensions as well.

A major issue in international rankings is the quality of the data generated. In the pilot study, measures were developed to ensure data quality and to minimize ‘gaming the results’: data-cleaning procedures, plausibility checks and feedback loops with the institutions. The option of ‘pre-filling’ the questionnaires with data from national sources, which should be explored in the next phase of the development of the instrument, would introduce more options for checking the data. In the student survey, we analysed whether the comparability of responses was distorted by systematic differences in students’ expectation levels between countries; no distortions were found.

In terms of the feasibility of U-Multirank regarding the potential *level of institutional interest* in participating in the new transparency tool, the results of the pilot study are positive. In broad terms, half of the institutions invited to participate in the pilot study agreed to do so. Given that a significant number of these institutions (32 per cent) were from outside Europe, despite the fact that U-Multirank is clearly a Europe-based project, this represents a strong expression of interest.

It is also important to recognize that a pilot study is not a real ranking. The institutions participating in the pilot project will have access to the institutional profiles and the dimension and indicator outcomes. While this provides an opportunity to compare and benchmark with over 100 other institutions worldwide, the outcomes of the pilot rankings will not be made public. The objective of the pilot study was to test the feasibility of the instrument, not to publish a ranking. We expect that the interest in a real ranking is likely to be greater than in a pilot project of which the outcomes are not being published.

Our single caveat concerns the global aspect of the feasibility study. The prospects for European coverage are encouraging. In addition, institutions from a number of countries not always visible in existing global rankings, were enthusiastic about the project (including Australia, Japan and a number of Latin American and Middle East countries). However, the large amount of data to be collected suggests that U-Multirank cannot easily achieve extensive coverage levels across the globe in the short-term and in one step. Thus, in the short term a comprehensive coverage of European institutions plus a limited extension beyond Europe is realistic. Additionally, the pilot test proved that it was particularly difficult to recruit institutions in China and the United States. Higher education and research institutions in the United States showed only limited interest in the study, while in China formal conditions appeared to hamper the participation of institutions. Special attention to launch U-Multirank in these systems will be needed. Nevertheless, in the pilot project worldwide participation from higher education institutions could be realized. We believe that there will be continuing interest from outside Europe from institutions wishing to benchmark themselves against European institutions and that there are opportunities for a targeted recruitment of groups of institutions from outside Europe.

A final aspect of feasibility in terms of institutional participation is the question of *institutional dropout and non-completion rates*. A brief survey of the institutions that agreed to participate but at the end of the day did not

submit data suggests that data (non-) availability was a common theme. One particular group of institutions took a policy decision to withdraw from the project. Beyond these two factors a diverse range of particular institutional issues came into play – including competing claims on the time of the staff concerned and changes in the key staff. Nevertheless, for a pilot study a completion rate of 109 of 159 (69 per cent) is more than respectable.

The third aspect of feasibility explored in the pilot study was the question of *the operational feasibility of up-scaling*. Our experience with the pilot study suggests that while a major ‘up-scaling’ will bring significant logistical, organizational and financial challenges, there are no inherent features of U-Multirank that rule out the possibility of such future growth to a worldwide level. The field-based ranking showed a substantial overlap of relevant indicators in the pilot study fields between ‘business studies’ and ‘engineering’. Furthermore, the identification of a number of field-specific indicators was also achieved. The overlap points to the fact that an extension to further fields may be assumed to be feasible. For the development of field-specific indicators, a stakeholder consultation with field organizations and experts proved to be successful. Therefore, it is realistic to expect that U-Multirank can be extended to more fields rather easily.

Summary and conclusion

In summary, the pilot test demonstrated that in terms of the feasibility of the dimensions and indicators, the potential institutional interest in participating, and the operational feasibility of up-scaling, we have succeeded in developing a U-Multirank ‘Version 1.0’ that is ready to be implemented in European higher education and research and for institutions outside Europe that are interested in participating. As has been outlined above, further development work is needed on some dimensions and indicators – hence Version 1.0. Furthermore, two achievements of the U-Multirank development have to be stressed:

- U-Multirank includes some unique methodological aspects that have not been implemented before in any kind of national or international ranking, in particular: the link between mapping and ranking, and the innovative bibliometric indicators analysing the co-publication behaviour in the context of international, regional and knowledge transfer collaboration.

- A benefit that should not be underestimated is that with U-Multirank the chance to be ranked on an international scale is no longer limited to a small group of research-oriented institutions with ‘global brands’. It also allows regionally focused institutions, bachelor degree-awarding colleges, polytechnics, art schools, music academics, specialized research centres and many more types of higher education and research organizations to appear in international rankings and to benchmark themselves at a supra-national level with colleague institutions that may be assumed to have related orientations.

Aside from these major aspects of feasibility and virtues of U-Multirank several other lessons learned for successful rankings could be derived from the pilot project:

- *Stakeholder consultation is not just a practical issue; it has become a crucial element of the ranking approach.* A participative approach to ranking with intensive stakeholder discussions emphasizes the principle of user sovereignty and stimulates users’ reflections on the relative importance of indicators and performances – of course without denying the responsibility of ranking producers for the indicators and methodology. Consultations should be a continuous element of ranking processes, not only in the conceptualization phase.
- *The important role of institutional data collection remains a challenge for elaborate rankings.* Institutional data collection will be inevitable if we want to exceed the traditional ranking approaches focusing on bibliometric or reputation surveys. Multidimensional rankings that want to take the variety of institutional missions and profiles into account cannot be realized without the application of institutional and student surveys. Therefore, these rankings have to succeed in convincing higher education and research institutions to invest time as well as energy in data-collection and reporting. This makes multidimensional rankings vulnerable: if they cannot see clear benefits from the ranking outcomes, institutions may not be inclined to get involved in data provision. Ranking producers always have to keep in mind the cost-benefit-ratio for the ranked institutions, without losing methodological rigor. During the pilot study, we provided a comprehensive compilation of ‘their’ data for each institution and offered the possibility to look for benchmarking partners within the sample. Such additional services enhance the institutional benefits of the ranking and proved to increase the institutional willingness to get involved in data-provision.

- In order to stimulate acceptance of U-Multirank, its data gathering has to be coordinated with other data-collection processes. In the pilot study three different problems of coordination of data collection activities were identified: in some cases there were overlaps with national data collections taking place at the same time, in some countries similar national data-collection activities already exist, and on the European level other international data collection projects were taking place in parallel. To avoid conflicts and overlaps and to create optimal conditions for acceptability, these initiatives have to be coordinated. Efficient planning of coordinated data-collection is needed. EU-level data-gathering initiatives have to be combined and, as far as possible, data collected in national rankings (and also from national statistics) should be fed into the U-Multirank database.
- A combination of a user-driven flexible web tool and authoritative rankings is an attractive way to present U-Multirank results. If a ranking is based on the user's selection of institutions and indicators, the ranking result will not be a 'one and only' performance list, presented in existing worldwide rankings. In a user-driven approach, each user can produce his/her own 'personalized' ranking with a flexible web tool. In the context of U-Multirank, the release of a new ranking outcome will not lead to the publication of a specific list, but to the integration of a data update in the ranking database, allowing a variety of users to produce a large number of their own personalized rankings. On the one hand, this is crucial for the 'democratization' of rankings; on the other hand it endangers the awareness for ranking results, and may lead to a situation where the simplistic picture of a (misleading) league table identifying the 'number one in the world' might still prevail in the public debate. To avoid this, U-Multirank should also offer so-called 'authoritative rankings', in which a specific selection of dimensions and indicators is pre-defined and selected on the basis of the 'authority' of a certain organization, institution, association or network. Authoritative rankings can be produced and published by higher education membership organizations, specific associations of higher education institutions, national or international public authorities, representation organizations, independent foundations, media partners and so on. This will enhance the benefits and attractiveness of U-Multirank. Authoritative rankings still follow our basic argument that there is no objective ranking and the subjective character should be an explicit principle of each ranking.

- *Especially for the web tool user-friendliness will be of major importance.* A league table is easy to understand (at least it pretends to be easily comprehensible because the complexities are concealed behind the composite indicator). A multidimensional ranking has to give an illustrative overview on a variety of indicators. Looking at Table 1 above, one could ask if users are able to deal with this complexity. If the single indicators are shown in tables, the question of interpretation of indicators arises. For instance, not everyone would be able to interpret adequately what a 'field-normalized citation rate' says about the performance of a university. User-friendliness of the presentation of information becomes a major prerequisite for the adequate use of rankings. Both experienced and 'lay' users should be enabled to benefit from performance rankings. The presentation modes should include attractive graphical presentations and make use of symbols and colours to create clear and coherent impressions at first glance. A web-application should provide clear guidance and explanation, and in particular address the needs of specific user-groups. A differentiated information provision format should be an integrated part of the web tool.

Finally, a crucial condition for a successful international implementation of U-Multirank will be its institutionalization. The 'authority' of the actor, the organization of the ranking processes and the 'ownership' of the data are sensitive issues in the world of ranking and should be approached carefully. In our view, U-Multirank should be independently institutionalized, with extensive advisory and communication structures for experts and stakeholders. There should be no direct decision-making authority for politics, governments and interest groups. Yet, a highly transparent governance structure should be established which carefully guards the independent character of the ranking outcomes. Funding could come from independent foundations and from sponsoring public and private organizations, as well as from the sales of standardized products and services (like data visualization, benchmarking support processes, SWOT analyses). Interested parties could be invited to create and publish their specific 'authoritative rankings'.

This project has demonstrated the complexity of developing transparency instruments in higher education and it is unrealistic to expect a perfect new tool to be designed at the first attempt. But the results achieved with U-Multirank are encouraging and make it possible to continue with its development. Furthermore, in the long run U-Multirank needs to remain a dynamic instrument that responds to new developments in higher education, the changing interests of users and new possibilities offered by improved data collection methods.

Reference

IREG (International Ranking Expert Group). 2006. *Berlin Principles on Ranking of Higher Education Institutions*. IREG.

Appendix 1. U-Multirank dimensions and indicators

The definitions of the indicators can be found online at: www.u-multirank.eu

Teaching and learning	
Focused institutional ranking	Expenditure on teaching
	Graduation rate
	Interdisciplinarity of programmes
	Relative rate of graduate (un)employment
	Time to degree
Field-based ranking	Student–staff ratio
	Graduation rate
	Percentage graduating within norm period
	Qualification of academic staff
	Relative rate of graduate (un)employment
	Interdisciplinarity of programmes
	Gender balance
	Inclusion of work experience
Field-based ranking: student satisfaction indicators	Student satisfaction: overall judgment
	Student satisfaction: evaluation of teaching
	Student satisfaction: inclusion of work experience
	Student satisfaction: organization of programme
	Student satisfaction: libraries
	Student satisfaction: laboratories
	Student satisfaction: quality of courses
	Student satisfaction: social climate
	Student satisfaction: support by teachers
	Student satisfaction: computer facilities
Research	
Focused institutional ranking	Percentage of expenditure on research
	Percentage of research income from competitive sources
	Total publication output
	Post-docs per FTE academic staff
	Interdisciplinary research activities
	Field-normalized citation rate
	Highly cited research publications
	Art-related outputs per FTE academic staff
Field-based ranking	Highly cited research publications
	Field-normalized citation rate
	External research income
	Total publication output
	Doctorate productivity
	Student satisfaction: research orientation of programme
	Post-docs per PhD completed

Knowledge transfer	
Focused institutional ranking	Incentives for knowledge transfer
	Percentage of income from third-party funding
	University-industry joint research publications
	Patents awarded
	Technology transfer office staff per FTE academic staff
	CPD courses offered per FTE academic staff
	Co-patenting
	Start-ups per FTE academic staff
Field-based ranking	Academic staff with work experience outside higher education
	Joint research contracts with private sector
	University-industry joint research publications

International orientation	
Focused institutional ranking	Percentage of programmes in foreign language
	Percentage of international academic staff
	International doctorate graduation rate
	International joint research publications
	Percentage of students in international joint degrees
	Percentage foreign degree-seeking students
	Percentage students coming in on exchanges
	Percentage students sent out on exchanges
Field-based ranking	Incoming and outgoing students
	International orientation of programmes
	International academic staff
	International research grants
	International joint research publications
	Percentage of international students
	International doctorate graduation rate
	Student satisfaction: opportunities to study abroad

Regional engagement	
Focused institutional ranking	Percentage of graduates working in the region
	Percentage of income from regional sources
	Regional joint research publications
	Research contracts with regional partners
	Percentage of students in internships in local enterprises
Field-based ranking	Degree theses in cooperation with regional enterprises
	Graduates working in the region
	Student internships in local enterprises
	Regional joint research publications

Chapter 15

Towards an international assessment of higher education learning outcomes: the OECD-led AHELO initiative

Richard Yelland and Rodrigo Castañeda Valle

Introduction

The lasting value of education for individuals and societies has been amply demonstrated. Education gives people the social capital and knowledge to invest in their own futures and to improve their well-being. Education offers governments a way to invest in human capital and participate in the knowledge economy. And it has proven positive social effects. For these reasons we have seen fifty years of growth and change in higher education as governments have set out to develop their higher education systems and provide opportunities to more of their citizens. As demand has grown, the ways of meeting it have diversified. Different types of institutions work in different ways, meeting the needs of an increasingly diverse student body. Technology has brought new opportunities for online and blended learning. Students now have the opportunity to study in institutions outside their country of residence and to combine modules from more than one institution. Growth and diversification have brought with them a growing focus on the outcomes of higher education, on the returns that both societies and individual can expect to see from the increasing investments they make in higher education. Students seek better and more transparent ways of assessing the quality of providers in a complex higher education market. Governments want to maximize the impact of spending in higher education as they seek to balance the demands of competing sectors. Institutions want to understand how to improve their teaching and learning to improve their services and their reputations.

Yet, there is no effective international comparison of higher education institutions (HEIs) that takes account of higher education's mission and circumstances. The international rankings that exist are primarily based on research output and/or academic reputation. The assessment of higher education learning outcomes offers the prospect of reliable international comparisons of what students know and can do at the end of a bachelor degree, and of greatly improved understanding of what works in higher education. The OECD is developing an assessment that aims to address this problem. The feasibility study for the Assessment of Higher Education Learning Outcomes (AHELO) aims to assess students across several languages and cultural contexts.

This chapter briefly sets out the key trends in higher education that have led OECD countries, and others, to work together to develop AHELO, and describes progress to date with the work.

Context: key trends in HE worldwide

Social value and key trends in HE

Education is a key factor for economic development and social well-being. Likewise, it is a powerful means to enhance individuals' life chances. For example, a person holding a university degree can expect to earn at least 50 per cent more than someone that has no qualification (OECD, 2011: 138, indicator A8). These two effects – individual and social – are interdependent phenomena. Social externalities such as labour market earnings, economic growth, wider markets of consumption or cultural capital (as in wider literate societies) are related to employability, income and individual literacy. According to recent studies on the social outcomes of learning (OECD, 2007), education enhances the process consolidating the formation of people's identities as citizens and members of a cluster group, and their participation in civic activities enhancing democratic and more tolerant systems. In this sense, education improves social cohesion and civil society (OECD, 2007: 17).

For these reasons, in recent years policy-makers and governments around the world have encouraged investment in the development of education systems that offer a majority of students access to a tertiary qualification. There has been an increase in the number of students and providers for primary and secondary education, and in the OECD countries it is expected that an average of 82 per cent of today's young adults will complete secondary education over their lifetimes (OECD, 2011: 44 indicator A2). Further, most students leaving secondary education have ambitions and expectations to participate in high-quality higher education.

Massification

The rise in investment in national education systems has had the general tendency of increasing the number of students enrolling or to be enrolled in higher education (HE) (see Appendix, chart 1). According to UNESCO, about 125 million students worldwide will have to be accommodated in higher education by 2025 (UNESCO, 2011). Indeed, the majority of students that graduate from secondary education in OECD countries do so in programmes aimed at providing access to tertiary education (OECD, 2011: 47, indicator A2). In addition, between 1995 and 2009, entry rates for tertiary

education in OECD countries increased on average by 25 percentage points, and today it is expected that about 78 per cent of young adults will join a tertiary programme (OECD, 2011: 308, indicator C2). Most students enter tertiary education immediately after graduating from secondary education. As a result, in some countries, 80 per cent of students entering HE are aged 25 years or younger (OECD, 2011: 310 indicator C2). Moreover, it is expected that more than one-third of today's young adults in OECD countries will finish some type of tertiary education over their lifetime as shown in chart 2 (OECD, 2011: indicator A3). Thirty-eight per cent of young adults graduated from some type of HEI in 2009 (OECD, 2011: 62, indicator A3). In addition, as shown in chart 3, between 1995 and 2009 graduation rates for HE increased in some countries up to an annual 8 per cent (OECD, 2011: indicator A3). In addition, about 13 per cent of adults in OECD countries proceed to obtain a second HE degree, such as a Masters degree (OECD, 2011: 63, indicator A3).

Internationalization

In 2009, about 3.7 million students were enrolled in HEIs outside their country of origin (OECD, 2011: 318, indicator C3). The countries that attract most students in the world are the G20 countries, and among them, HEIs within OECD countries are seen as the most appealing, attracting about 77 per cent of all foreign students enrolled in tertiary programmes outside their countries of citizenship (OECD, 2011: 318, indicator C3). For these reasons, international students represent an increasingly important fraction of the entry rates in HE programmes worldwide, as shown in chart 4. The number of students that cross borders with the intention of studying is a phenomenon that has been gradually augmenting the entry rates in many HE systems. In Australia alone, international students increase the entry rates by approximately 29 per cent (OECD, 2011: 312, indicator C2).

These tendencies towards massification and globalization favour countries whose language of instruction is widely spoken. In particular, there is a significant increase in English as the language of instruction in tertiary education programmes. However, the international market is unequally distributed among countries (see chart 5). Language of instruction is not the only factor: international students are also influenced by the openness of the education system, and the prospect of obtaining employment after obtaining a degree in a foreign country. According to OECD's *Education at a Glance (EAG)*, approximately 25 per cent of international students who do not renew

their student permits or visas change their legal status for reasons related to work opportunities (OECD, 2011: 319, indicator C3).

A need for information

Motivated by their interest in investing in their individual human capital, students tend to select HEIs in which to conduct their studies based, at least in part, on the perceived quality of the programme or institution. For this reason, among others, rankings and league tables have been gaining ground as a means to support such important decisions. As *Education at a Glance* puts it:

International students increasingly select their study destination based on the quality of education offered, as perceived from a wide array of information on and rankings of higher education programmes now available, both in print and on line. For instance, the high proportion of top-ranked higher education institutions in the principal destination countries and the emergence in rankings of institutions based in fast-growing student destinations draws attention to the increasing importance of the perception of quality even if a correlation between patterns of student mobility and quality judgements on individual institutions is hard to establish. In this context, institutions of higher education are more willing to raise their standards in the quality of teaching, adapt to more diverse student populations, and are more sensitive to external perceptions. (OECD, 2011: 323)

Thus, the social and individual value of education has led to a growth in the higher education. This growth has become politically and strategically important for governments.

These were among the reasons that led the OECD Education Ministers meeting in Athens in June 2006 to devote their agenda to higher education (OECD, 2006). At this meeting, governments highlighted their satisfaction with the growth of higher education, and its increasing diversity, but expressed concern about quality and accountability. Precisely as a result of growing awareness of the value of HE to generate powerful individual and social capital, ministers were keen to discuss better policies for improving the access of individuals to HE and its proper and feasible funding. The need to provide students, families and employers, as well as the institutions themselves, better information on the quality of HE was clear (OECD, 2006: 84).

What do we know about the assessment of quality in higher education?

What kinds of proxies are available?

Despite widespread public and government interests in developing the sophistication of mechanisms for quality assurance in HE, there is a gap between quality assessment and public opinion. There seems to be a feeling that HE quality assurance has not been transparent enough. The lack of authoritative, publicly available assessments of the quality of teaching and learning in higher education has left a space for the development of an industry that has been gaining rapid ground: national and international university rankings. Rankings are very frequently used nowadays as proxies for – or evidence of – the quality of teaching and learning in HEIs across the globe.

Among the whole range of assessments, perhaps the most prominent are the following (see Rauhvargers, 2011):

1. **Shanghai Jiao Tong Academic Ranking of World Universities (ARWU):** This ranking has been developed and carried out since 2003 by the Shanghai Jiao Tong University, one of the most prestigious universities in China. Their assessment is academic in scope and may be considered less biased by commercial interests. It purports to measure, among other inputs, the quality of the faculty as well as the quality of the research in any given HEI.
2. ***Times Higher Education* World University Rankings:** Developed by the United Kingdom's leading publication on higher education, this is a league table of the world's best 200 universities published since 2004 (initially in partnership with QS and since 2010, in partnership with Thomson Reuters of the Reuters group). It purports to assess teaching, research and reputation of universities all over the world.
3. **Quacquarelli Symonds (QS) World University Rankings:** This ranking has been developed by QS since 2010. It purports to assess a series of variables ranging from teaching and research quality, to other inputs like the amount of libraries, their capacity to innovate or its community involvement.
4. **U-Multirank:** This ranking has been developed by the European Commission in order to highlight the diversity of European higher

education, and enhance transparency about the performance of HEIs across Europe. It recognizes the particular importance of teaching and learning in HE, but lacks the proxies for their assessment. To U-Multirank, universities are research centres, but are also teaching centres whose quality must be assured. Their approach is multi-dimensional and its first results are expected to be available in 2013.

Despite these different approaches, given the complex and varied contexts in which higher education is provided, with widely different cultures, languages, population sizes, economic development and education systems, what reliance can be placed on international rankings as a source of information on the quality of teaching? The answer is very little, as these rankings are based largely on research output. That being the case, how can we assess the quality of teaching in higher education taking account of different approaches to teaching and learning in different contexts?

Given the important investment made by governments and stakeholders in HE, and by the individuals interested in investing their social capital, the development of tools that evaluate and assure the quality of HE is essential for the education market to develop and support HEIs' effectiveness and standards worldwide. Moreover, accreditation and quality assurance of higher education must demonstrate the capacity to deal with the phenomena of massification, globalization and internationalization. This is difficult to achieve in a context in which the perceptions of the quality and value of higher education outcomes are heavily influenced by international rankings, which are, at best, unreliable devices by which to measure the quality of teaching.

The relevant question is whether it is possible to develop an assessment methodology that will meet the needs of the investing governments and partners, and the demands of the general public.

Is it possible to develop instruments to measure learning outcomes across borders?

The OECD PISA assessment and others have demonstrated that it is possible to perform reliable and internationally comparable evaluations of what school students have learned and can do. Perhaps more importantly, PISA has demonstrated the practical possibility and usefulness of international comparisons between education systems to inform policy development and teaching practice. PISA assesses 15 year-olds. The question of whether

something comparable can be done for students in higher education remains open. The challenge is both epistemological and practical. We know what we are aiming to do, but we lack the data to assess it. Those data have to be generated. To do that requires the development of an agreed assessment instrument, and that in turn requires agreement on which outcomes that are to be assessed and how.

Around the world, there are many different institutions, different disciplines, different languages and different approaches to teaching and learning. All these contextual and process factors complicate the task of international comparison. Therefore, we must aim to evaluate students' capacity for applying their knowledge in real life situations (e.g. what sorts of skills have been acquired and how those skills are used). To add value, and to avoid stifling diversity, which can be dangerous, such assessments need to go beyond testing knowledge. They must test students' capacity to reason in complex and applied ways, and to use skills and competencies effectively in different settings. The assessments need to be sophisticated and align with the forms of thinking and professional work in which most graduates will engage. They need to employ a wide range of methods, provide for a more balanced view of higher education quality, and tap into capabilities that both educators and professionals recognize as important for educational success) (Coates and Richardson, 2011: 5)

The aim is to develop an assessment that provides evidence of learning outcomes in higher education across borders through a series of tests that are applicable to students in different countries and cultures. This assessment should be developed on the premise that objective information on learning outcomes can contribute to HEIs' understanding of their teaching performance, and thereby provide a tool to develop and improve learning and teaching methods.

The AHELO Feasibility Study

AHELO

The OECD's Assessment of Higher Education Learning Outcomes (AHELO) has been developed in response to the issues identified above to provide good evidence of learning outcomes in higher education worldwide. AHELO focuses on the intention of providing HE leaders with in-depth information

and tools to promote positive change and better learning. Currently, AHELO is in the feasibility study stage: work is progressing on exploring how an assessment of teaching and learning standards can be internationally valid. This entails evaluating the scientific feasibility of carrying out an international assessment of higher education learning outcomes (in generic and subject-specific skills) at the end of a Bachelor's degree programme, as well as estimating the feasibility of its practical implementation.

In addition, this study is designed to determine the validity of the AHELO assessment tools cross-culturally and in many different languages. Accordingly, instruments have been developed to assess three specific strands at the end of first-cycle (Bachelor) degrees:

- generic Skills (critical thinking, analytic reasoning, problem-solving and written communication),
- economics,
- engineering.

The aim is not to assess the student's knowledge of the specific curricular content of these strands. Rather, AHELO aims to test what is *above content*, meaning the student's ability to use specific concepts of the discipline and their own analytical thinking to solve real-life problems. Therefore, instead of weighting a student's curricular knowledge gain, AHELO measures the student's capacity to master 'the language' of the discipline. AHELO aims to demonstrate that it is possible to devise a set of test instruments applicable across a range of different institutions, cultures and language, and that the practical implementation of these tests is feasible.

The content to be measured within each strand has been defined by multinational groups of experts in each field, practitioners and technical specialists. The assessment instruments for economics and engineering are based on points of common understanding among independent academic institutions and specialist definitions of conceptual frameworks of expected/desired learning outcomes within these specific disciplines. In other words, they are based on general consensus among relevant parties within a specific discipline, of the desired performance of students upon graduation.

AHELO does not seek homogeneity or uniformity on degree programmes, but rather basic agreement on expected learning outcomes or competences within academic fields. Furthermore, recognizing that higher education is context-dependent, AHELO contains a set of contextual assessment tools to weigh the particularities of each specific cultural context and institutional setting. These

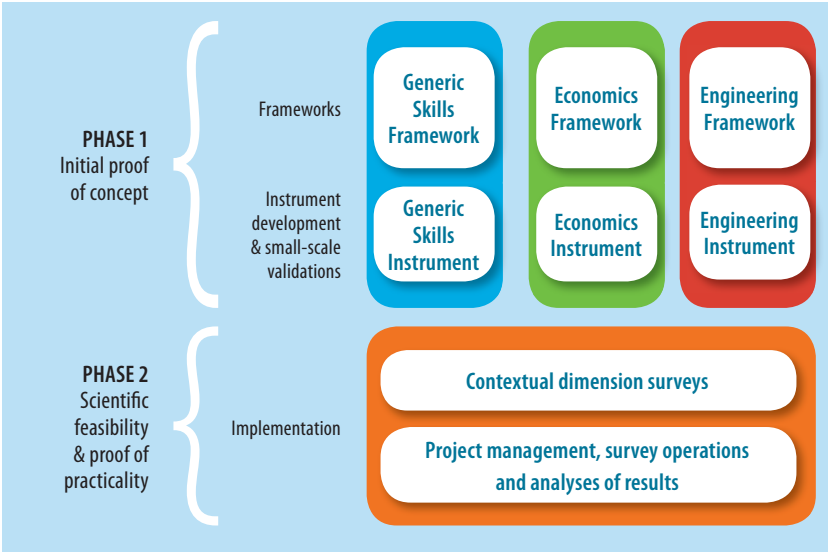
tools are intended to provide analytical depth for the student assessments. Ten-minute questionnaires will be administered to students, faculty members and institutional leaders to assess the characteristics of each learning context.

- There are now sixteen countries participating in the AHELO feasibility study including twelve OECD member countries and four non-members. They are involved in twenty-three strand replications. In addition, another thirteen OECD member countries have been indirectly involved either through financial support to the feasibility study or through their participation in the development of the AHELO concept.
- The feasibility study is being conducted in: Australia, Belgium (Flemish Community), Canada (Ontario), Colombia, Egypt, Finland, Italy, Japan, Korea, Kuwait, Mexico, the Netherlands, Norway, the Russian Federation, the Slovak Republic and the United States (Connecticut, Missouri and Pennsylvania).

To date, the assessment framework and instruments have been developed. The early findings are promising regarding both the economics and engineering strands.

The work on AHELO unfolds in two phases (Figure 1):

Figure 1



Source: OECD (2011: 322, Indicator C3, Chart C3.3).

- The first phase from August 2010 to June 2011 focused on providing an initial proof of the concept. In this phase, the goal was to develop provisional assessment frameworks and testing instruments suitable for an international context for each of the disciplinary strands of work: economics and engineering; to adapt an existing instrument for the generic skills strand; and to validate these tools through small-scale testing (cognitive labs and think aloud interviews) in participating countries. The goal was to get a sense of cross-linguistic and cross-cultural validity. The focus has been on the feasibility of devising assessment frameworks and instruments that have sufficient validity in various national, linguistic, cultural and institutional contexts.
- In a second phase from March 2011 to December 2012, the goal is to evaluate the scientific and practical feasibility of an AHELO by focusing on the practical aspects of assessing student-learning outcomes. During this phase, the implementation of assessment instruments and contextual surveys in small groups of diverse HEIs will explore the best ways to implicate, involve and motivate leaders, faculty and students to take part in the testing. It will also examine the relationships between context and learning outcomes, and the factors leading to enhanced outcomes. This second phase will address issues of practical feasibility, further investigate validity issues and assess data reliability.
- AHELO has made progress and demonstrated its applicability in several significant areas:
 - The *Engineering Assessment Framework* reached a relevant consensus within the development team that comprised experts from Australia, Japan and several European countries. There has also been positive feedback from stakeholders consulted throughout the development including engineering societies and associations of professional engineers. Indeed, initial validation of the AHELO Engineering Assessment shows that there is strong potential for the Engineering Assessment Framework to be implemented well and provide valid, reliable and efficient measurement of target constructs.
 - The Economics Assessment Framework, which defines the domain to be tested and specifies the expected learning outcomes for students in the target population, has undergone international validation. So far, the endorsement of the assessment by domain experts and national managers in a number of countries suggests that it is possible to develop assessments meeting international standards in this domain.

Furthermore, the AHELO Economics Assessment has shown up to now, like the Engineering Assessment, that there is strong potential for the Economics Assessment Framework to be implemented well.

- The development of a Contextual Dimension Framework was undertaken through research and consultation, and by seeking the expert opinion of groups and individuals from around the world. Its validation reflects an international consensus on the important contexts shaping higher education learning outcomes. Widespread consultation based on the AHELO Contextual Dimension instrumentation suggests that the Contextual Dimension Student, Faculty and Institution Context Instruments have the strong potential for the Contextual Dimension Assessment Framework to be implemented well, as well as providing valid, reliable and efficient measurement of target constructs.

The potential of an AHELO

Institutional improvement and fairer education systems

AHELO is a programme intended to assess the feasibility of providing systematic information, which will assist all concerned to make better-informed judgments about the quality of higher education and how it can be improved. We have argued here that no international ranking evaluates teaching and learning in HE effectively. The narrow range of criteria used in university rankings creates a distorted vision of educational success and fails to capture the essential elements of an education: teaching and learning. AHELO will broaden the scope of evaluation to include teaching and learning – aspects that are fundamental to every higher education institution.

AHELO has the potential to become a powerful ally for quality assurance of higher education through the assessment of learning outcomes throughout the world. It is an innovative endeavour intending to assist the improvement of teaching and learning in HE and its internationalization. Further, it has the intention to make the performance of HEIs and its added value to the individual and social capitals more transparent.

Better connect higher education and society

- If the feasibility study is successful, a full-fledged AHELO could provide valuable analysis at many levels. It will complement quality assurance in helping institutions to understand their strengths, address their weaknesses and plan their future agendas. It will help faculty understand what works in their methods and how to improve it. It will assist policy-makers to understand the effectiveness of systems and to make decisions about structure and resources accordingly. Employers may have more reliable information on the capacities and capabilities of job candidates and will no longer have to rely on institutional selectivity as a guide.
- Importantly, it will help fill the information void and enable students to make more informed choices about their futures. Far too many students drop out of higher education programmes before completing them: this can be not only a personal setback, but also a waste of valuable resources. If AHELO can help students better match programmes to their expectations and aspirations it may offer higher education stakeholders the possibility of determining general standards for HEIs across national borders.

Conclusion

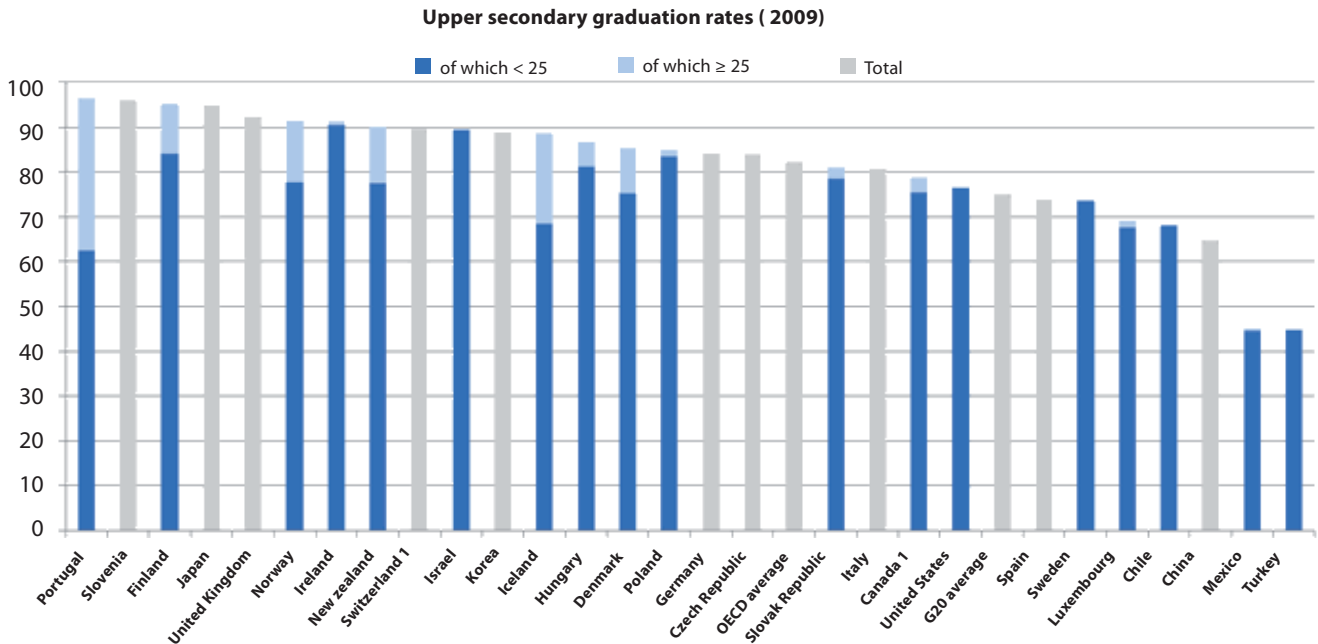
Higher education brings significant individual and social benefits. Massification, globalization and internationalization are challenging higher education systems. New approaches to the assessment of quality and performance are demanded both by governments and individuals. The OECD has taken the initiative in developing an international assessment of learning outcomes in higher education. Experience to date is encouraging but there is still some way to go before definitive results will be known.

We are hopeful the successful development of a reliable cross-cultural analysis will be a building block in the improvement of quality, equity and effectiveness in higher education.

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Chart 1



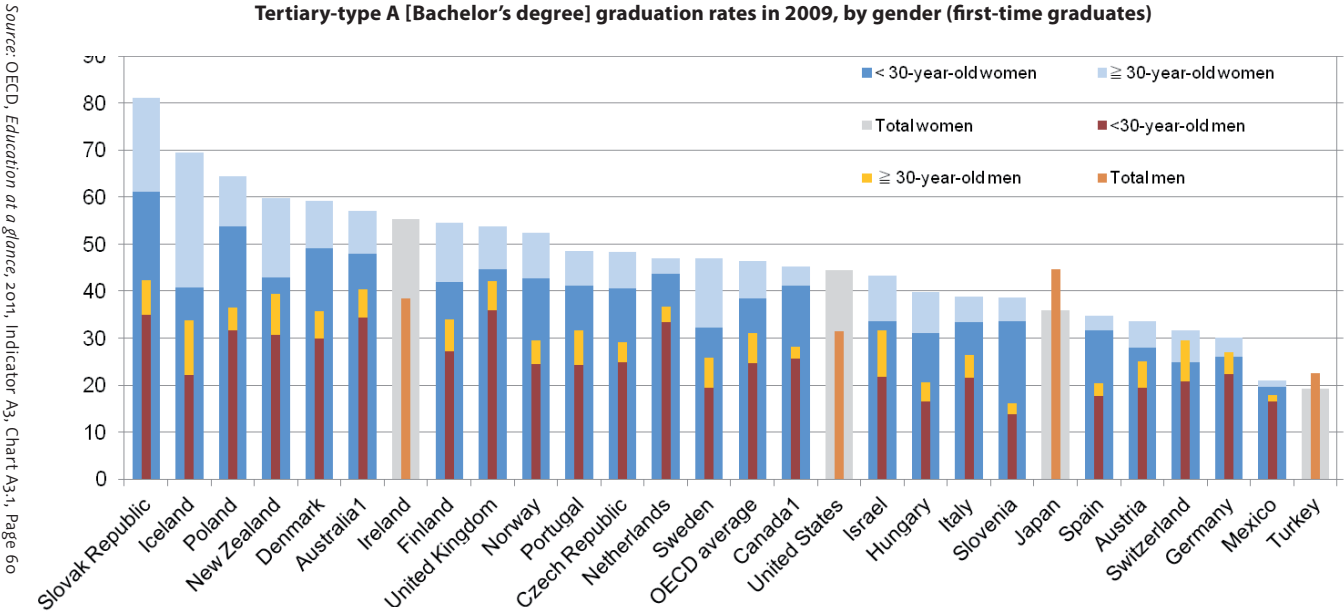
1. Year of reference 2008.

Countries are ranked in descending order of the upper secondary graduation rated in 2009.

Source: OECD, China: UNESCO Institute for Statistics (World Education Indicators Programme) Table A2.1. See annex 3 for notes (www.oecd.org/edu/eag2011).

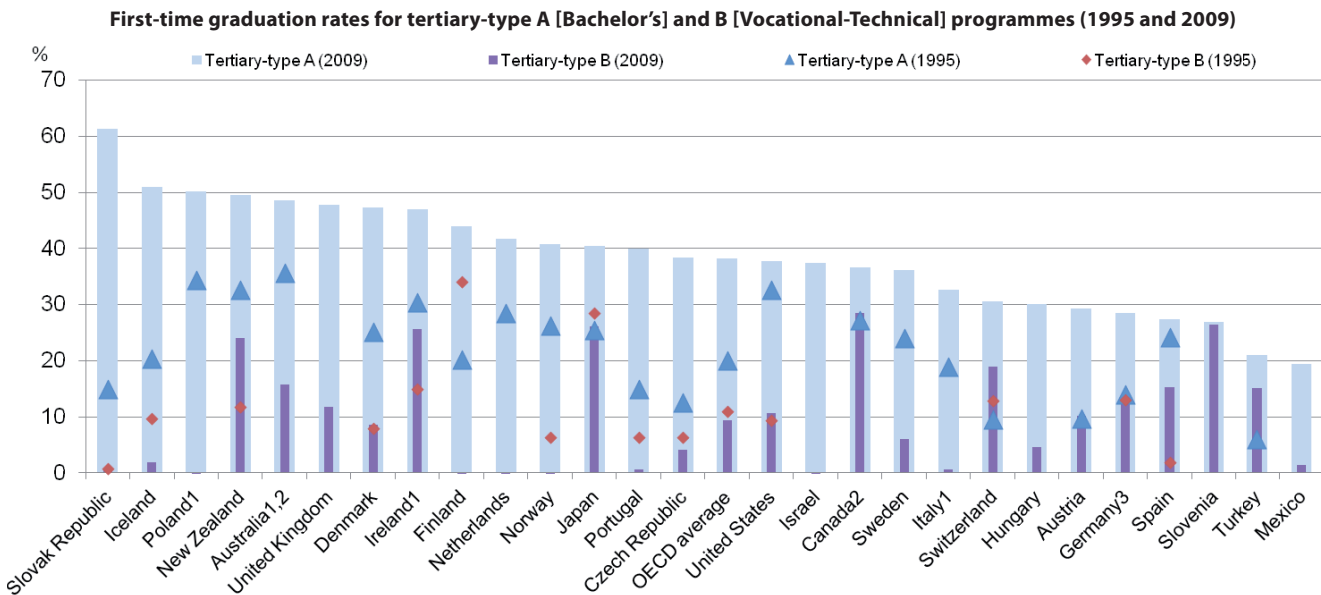
Source: OECD, *Education at a glance*, 2011, Indicator A2, Chart A2.1, Page 44

Chart 2



1. Year of reference 2008.
Countries are ranked in descending order of women's graduation rates for tertiary-type A education in 2009.
Source: OECD, Table A3.1. See annex 3 for notes (www.oecd.org/edu/eag2011).

Source: OECD, *Education at a glance*, 2011, Indicator A3, Chart A3.2, Page 63



1. Year of reference 2000 instead of 1995

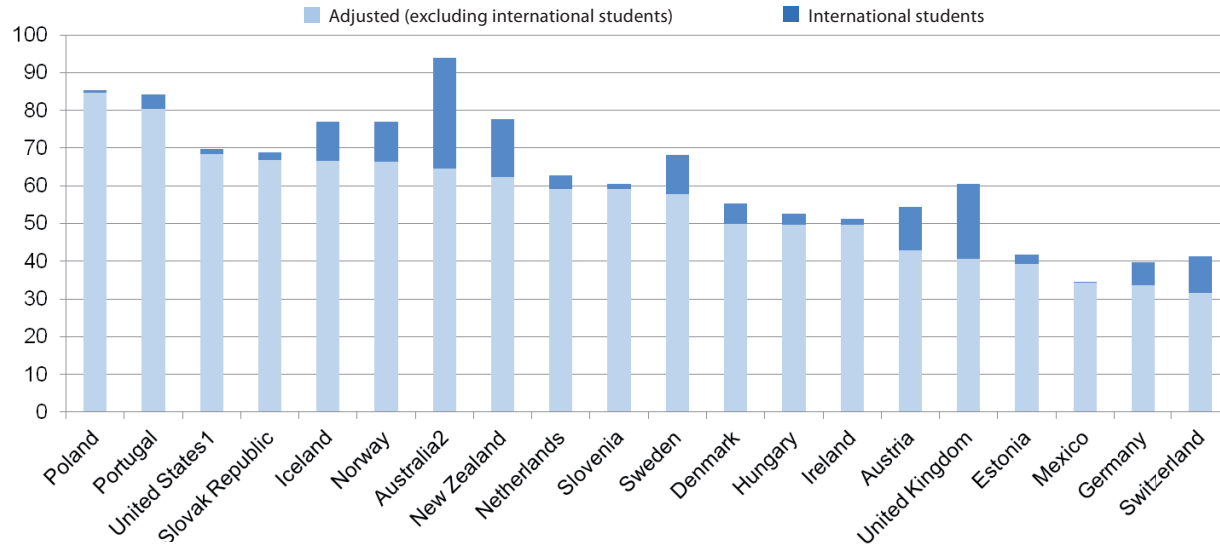
2. Year of reference 2008 instead of 2009

3. Break in the series between 2008 and 2009 due to a partial reallocation of vocational programmes into ISCED 2 and ISCED 5B.

Countries are ranked in descending order of the first-time graduation rates for tertiary-type A education in 2009.

Source: OECD, Table A3.2. See annex 3 for notes (www.oecd.org/edu/eag2011).

Entry rates into tertiary-type A [Bachelor's] education: Impact of international students (2009)



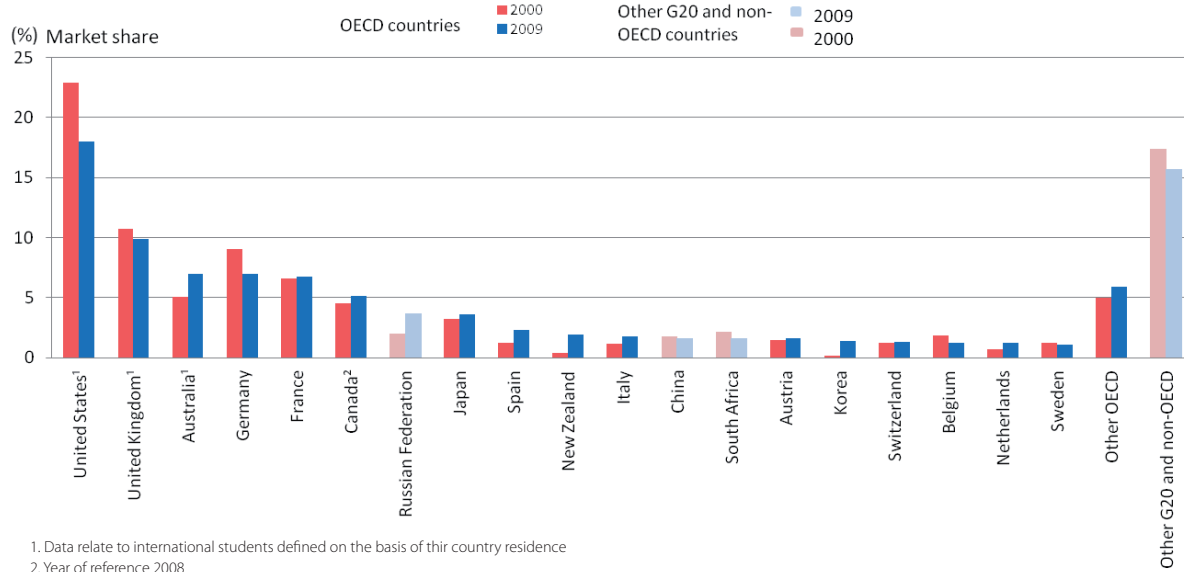
1. The entry rates at tertiary-type A level include entry rates at tertiary-type B level

2. Year of reference 2008

Countries are ranked in descending order of adjusted entry rates for tertiary-type A education in 2009

Source: OECD, *Education at a glance*, 2011, Indicator C2, Chart C2.3, Page 312

Trends in international education market shares (2000, 2009)
Percentage of all foreign tertiary students enrolled, by destination



1. Data relate to international students defined on the basis of their country residence

2. Year of reference 2008

Countries are ranked in descending order of 2009 market shares.

Source: OECD and UNESCO Institute for Statistics for most data on non-OECD countries. Table C3.6, available online. See annex 3 for notes (www.oecd.org/edu/eag2011)

Source: OECD, *Education at a glance*, 2011, Indicator C3, Chart C3.3, Page 322

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