

The THES University Rankings: Are They Really World Class?

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ABSTRACT

The Times Higher Education Supplement (THES) international ranking of universities, published in 2004 and 2005, has received a great deal of attention throughout the world, nowhere more so than in East and Southeast Asia. This paper looks at the rankings and concludes that they are deficient in several respects. The sampling procedure is not explained and is very probably seriously biased, the weighting of the various components is not justified, inappropriate measures of teaching quality are used, the assessment of research achievement is biased against the humanities and social sciences, the classification of institutions is inconsistent, there are striking and implausible changes in the rankings between 2004 and 2005 and they are based in one crucial respect on regional rather than international comparisons. It is recommended that these rankings should not be the basis for the development and assessment of national and institutional policies.

Introduction

In recent years there has been a lot of interest in the comparison of universities and other educational institutions. For some time, the *US News And World Report* (2006) has ranked American universities while the *London Guardian's* (2006) ranking of teaching quality is well known among British university applicants. Attempts to compare universities internationally are more recent and in some ways quite controversial.

As the flow of students, teachers, ideas and programmes increasingly ignores national borders, the market for such international rankings is clearly substantial and growing. Students need to compare faculties and

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departments in different countries, employers need to evaluate the universities where they recruit, admission officers need to compare standards and qualifications, official agencies and the public are entitled to know about the quality of institutions that consume national resources.

The Shanghai Jiao Tong University Index

Three recent exercises in the international ranking of universities have aroused interest. The Institute of Higher Education at Shanghai Jiao Tong University, PRC, has produced a ranking of the world's top 500 universities based on a variety of criteria that are entirely research based (Institute of Higher education, 2005). The Shanghai index is not without faults. It has nothing to say about university activities other than research. It is in some respects essentially historical, recording past achievements such as Nobel awards and the Fields prizes for mathematics awarded decades ago rather than current activities. It also lists only 500 universities and therefore tells us nothing about the thousands of other universities except that they did not make it into the top 500. It is, however, ruthlessly objective. It does not seem to show, for example, any bias towards universities in the People's Republic. The top ranked Chinese university is Tsing Hua University at position 153-200, well behind several Japanese universities, while Shanghai Jiao Tong itself trails in the 300s.

The Webometrics Ranking

Another ranking is produced by *Laboratorio de Internet* (Webometrics Ranking of World Universities, 2006) and is based entirely on universities' web-based activities. It combines a variety of indicators such as the number of pages identified by search engines, the number of unique external links received, and the number of "rich files" generated by a university. This ranking includes a minority, that is 3,000, of the world's universities although this is still many more than the Shanghai index. Fascinating though this ranking is, it is still heavily focused on research and would say little about accomplishments that might have a limited web impact such as excellence in teaching or the publication of books.

The THES Rankings

In 2004, and again in 2005, *the Times Higher Education Supplement* [THES] (5/11/04, 28/10/05) produced a ranked list of the world's top

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200 (actually 201 in 2005) universities. The rankings, compiled by the consulting firm QS Quacquarelli Symonds with the assistance of Evidence Ltd., were based on several criteria: peer review by academics, citations of research articles per faculty member, teacher-student ratio and numbers of international faculty and students. A new criterion, assessment by employers of recent graduates, was added in 2005.

Reaction to the THES Rankings

The 2004 rankings aroused enormous, perhaps obsessive, interest in many parts of the world, especially in East and Southeast Asia. Teachers, students and university officials awaited those of 2005 with fear or hope. Universities that had struggled into the lower reaches of the top 200 waited anxiously to see whether they would be cast into the outer darkness of the unranked. Those at the top wondered if there were rivals snapping at their heels. Those outside fretted about what they had to do to get listed. When the results were published and Universiti Malaya in Malaysia slid from 89th to 169th, there were meetings, editorials, letters to newspapers, questions in parliament chewing over the apparent dramatic collapse of quality (see e.g. New Straits Times, 20/11/2005).

Assessment of the THES Rankings

The ranking exercise looks rather dubious in many ways and some negative side effects have become apparent. The rankings, at the very least, need to be supplemented with and perhaps even replaced by other forms of assessment and should certainly not be the basis for national or institutional policy decisions.

First of all, the rankings were not compiled by the respected THES but by a firm of consultants, the much less well-known QS Quacquarelli Symonds, although it was apparently THES that decided on the weighting to be allocated to each component (Sun 27/11/05). This company specialises in promoting international MBA education and executive recruitment. It does not seem to have any specialised knowledge of research and teaching in the natural and social sciences or the humanities. The London-based QS also has offices in Washington DC, Paris, Beijing, Singapore, Tokyo and Sydney, the current dominant centres of global business activity (QS Network, 2006). It does not have offices in less

fortunate places like Latin America, Canada, Africa, the Middle East, Eastern Europe or South Asia. This, we shall see, might be of some significance.

Even a brief glance is sufficient to raise questions about the rankings. Firstly, it is a little odd that there are no universities in the top 200 from Africa, not even from South Africa, where several universities have fine reputations in a variety of disciplines. The absence of the University of Cape Town is particularly striking. There are only two universities from Latin America but a very large number from East Asia. There are six universities from the Peoples Republic of China (not counting Hong Kong) but only one from Taiwan. Despite a smaller population, Australia has twice as many universities in the top 200 as Canada.

Not only this, but the consultants who produced the rankings have made at least one serious error. In 2004, two Malaysian universities were highly ranked largely because they were given a false and exaggerated score for numbers of international students and international faculty. In 2005 Universiti Malaya fell 80 places while Universiti Sains Malaysia disappeared from the top 200 altogether. There was in fact no fall in quality. What had happened was that in 2004 QS thought that ethnic minorities at the Malaysian universities were foreigners and in 2005 they corrected this mistake (New Straits Times, 22/11/06).

Another probable error has been identified by the website *Leiter's Law School Reports* (2006). In 2004 the University of Texas at Austin racked up a very high score in the citations section and then dropped dramatically on this measure in 2005. A plausible reason for this was the inclusion in 2004 and subsequent exclusion of the Southwestern Medical School in Dallas in the citation count.

There is something else that has received little attention. The top university in Asia and number 15 in the world according to the THES was Beijing University. The problem with this is that, strictly speaking, there is no such thing as Beijing University. China's premier university calls itself Peking University in English and this is the name on its web site. Evidently, this is the university that THES and QS were thinking of and that was described in detail in the THES (Times Higher Education Supplement, 28/10/05) under the name of Beijing University when the 2005 rankings were announced. There are also a large number of specialist universities in Beijing such as the Beijing University of Aeronautics and Astronautics, the Beijing University of Science and Engineering, the Beijing University of Traditional Chinese Medicine and so on.

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No doubt, somebody at the THES or QS decided to join some other western publications and refer to Peking University as Beijing University. If this was all there was to the matter then no harm, apart from a little confusion, would have been done. But QS's managing director, Nunzio Quacquarelli, is on record as telling a meeting in Malaysia that the reason for the contrast between Beijing University's stellar score on the peer review and its score of zero for citations of research was that "they probably published their work in Mandarin but we just couldn't find the journals" (New Straits Times, 22/11/2005). Had they looked for research from Peking University, which is how researchers describe their affiliation in academic journals, they would have found quite a bit. It looks as though some people in QS were unaware of the university's official name. This does not inspire confidence in the competence of the consultants to select peer reviewers to judge the quality of universities. One wonders also whether Beijing University's high peer review score included nominations from the specialist universities, especially the Beijing University of Aeronautics and Astronautics, which has one researcher in Thomson Scientific's Highly Cited Researchers list (Thomson Scientific, 2006).

Another thing that is rather strange is that the Indian Institutes of Technology and Indian Institutes of Management are treated as one institution each even though they are hundreds of miles apart and autonomous. On the other hand, the Francophone and Flemish sections of Belgian universities are counted as separate institutions. This seems rather inconsistent but actually it is not. In both cases the effect is to increase the number of universities from outside the USA in the top 200.

Peer Review

The peer review section is the most questionable of all the criteria. THES rightly calls it "the core of our analysis". It constitutes 40 per cent of the weighting, down from 50 per cent in 2004, and it is the criterion for admission to the initial group of 300 universities from which the top 200 are drawn. It is also the only criterion for the rankings of universities for science, technology, arts, social science and biomedicine.

The sampling method, as far as can be discerned from the little that we have been told, does not seem to adhere to conventional social scientific standards of quality. For consultants who claim to be able to pick academic experts who can assess the quality of universities, this is a little ironic. In 2004, according to the THES, QS asked 1,300 academics

in 88 countries “to nominate both the academic subjects and the geographical areas on which they felt able to comment” and to name the top institutions in these areas and subjects. There follows a rather puzzling comment. THES says that additional reviewers were added to “balance nominations” in the subject areas and geographical regions (Times Higher Education Supplement, 5/11/2004). If this means that the consultants found that they did not get enough responses from specific geographical it might be acceptable. But if it means that the reviewers did not nominate enough universities from certain areas so that QS went and got more reviewers until they got the answers they wanted then it is another thing altogether. It is rather like continually moving the goalposts until somebody finally scores a goal. It is somewhat questionable and certainly needs some explanation.

In 2005 the sample was expanded to 2,375 “research-active academics” chosen by QS. The THES is not entirely clear but it appears that the figure of 2,375 was additional to the 1,300 reviewers surveyed in 2004. THES says that “(D)ata collected in 2005 were supplemented by opinions from our 2004 survey” (Times Higher Education Supplement, 28/10/) This renders any comparison between 2004 and 2005 pointless because the score for 2005 is actually a combination of data from 2004 and 2005. There is also something else about these data that should be noted. In 2005 the gap between the top universities and those further down the ladder is noticeably reduced. Harvard, for example, is recorded as having a score of 643 in 2004 and 100 in 2005 while the Canadian university, McGill, had scores of 132 and 52. Given the overlap between the two sets of data, such a large relative improvement by so many universities seems implausible. A partial explanation may be provided by THES’s reference to the 2004 survey where “no individual’s survey was counted twice” (Times Higher Education Supplement, 28/10/05) suggesting that in 2005 some at least were counted twice or more. This implies that in 2005 the peer reviewers were allowed to nominate more than one university, boosting the score for universities outside the world’s elite. Furthermore, we are not told whether these numbers represent those who were sampled or those who responded to the questions, something that is standard in any social science research project.

The peer reviewers were recruited from the “three main economic regions” of the world, North America, Asia and Europe. Slightly less than a third of the reviewers came from each of these regions with Latin America and Africa getting the remainder. This means that the latter two regions get somewhere between 1% and 10% between them,

depending on whether slightly less than a third means 33 per cent or 30 per cent. It is unclear whether this meager residue was equally divided between Africa and Latin America. Probably, rather more went to Latin America. Roughly equal numbers of reviewers came from the fields of the arts, social sciences, biomedicine, science and technology. We should note that THES apparently considers biomedicine to be as significant as the entirety of the social sciences. This would add to the bias towards medicine found, as we shall see, in the citations section.

This section raises many questions. Firstly, it does not appear to be a representative sample of world academic opinion. Only those academics deemed by QS to be experts are included. It would be perfectly possible to produce a genuinely representative sample of experts by going through the pages of *The World of Learning* (2002) or *the International Handbook of Universities* (2005) and picking deans and professors at random but apparently QS did not do this. The panel seems to be composed of those that the consultants considered to be experts but how their expertise was determined is not stated. We are given no information at all about how the sample was selected and how the respondents were distributed within the three economic regions.

It is difficult to avoid the suspicion that the peer review was based on convenience sampling, with QS simply asking those that they had come across during their consultancy activities. This would explain the presence in the top 200 of several apparently undistinguished universities from France, Australia and China where the consultants have offices and the comparative scarcity of universities from Eastern Europe, Israel, Taiwan and Canada where they do not. Thus, it is probable that this section is heavily biased towards those universities that are involved in globalised education, especially graduate business training, and those in Western Europe and the Asia-Pacific region.

One of the greatest perils of social science is the use of large but badly biased samples. That is why the *Literary Digest's* attempt to predict the winner of the 1936 US presidential election with of a poll of two million readers was such a flop while George Gallup got it right with a sample of 4,000. The size of a sample is not the most important factor in determining its validity. It is the extent to which it represents the larger population. In this regard the THES peer review is suspect.

Furthermore, the peer review is not really an international ranking. According to Martin Ince (*Times Higher Education Supplement*, 28/10/05) in 2005 QS repeated their procedure of 2004 and asked the academics to name "the top universities in the subject areas and the geographical

regions in which they have expertise.” In other words Chinese physicists, we can only assume, were not asked to name the best university for physics in the world but to name the best university for, say, nuclear physics in Asia, maybe even just in China. If this is the case, these are not world rankings. Chinese and Australian universities are getting good peer reviews not because they are highly regarded throughout the world, which is what an international ranking ought to mean, but because they are selected by academics in the Asia-Pacific region who have been asked to name the best universities in a specific region. Some mysteries can now be cleared up. Why are there so many more Australian than Canadian universities? Because Canadian universities had to compete with those in the US while Australian universities were being compared with those in countries like Pakistan or Myanmar. Why no South African universities and so few Israeli and Taiwanese? Because there were few peer reviewers from Africa and those from Asia did not regard Taiwan and Israel as being in their geographical area.

All this is rather like FIFA announcing that, instead of having a final round of the world cup, they would just count the performance of the teams in the regional rounds. So, China and Australia would do very well having scored a lot of goals playing against India or Papua New Guinea and perhaps even surpass Argentina and Italy who struggled to narrow victories against the likes of Mexico or Spain.

Recruiter Ratings

The next criterion is also questionable. The consultants wanted to find out which universities were highly regarded by what the THES calls “employers of internationally mobile graduates” (Times Higher Education Supplement, 28/10/05) The sample of employers was produced by QS “from their own knowledge of graduate recruiters” and by asking universities which companies recruited their graduates. The second procedure is rather strange to say the least. In effect, QS asks universities which companies recruit their graduates and then goes to those companies and asks them where they do their recruiting. Any social science graduate student would recognise this is not a sensible way of selecting a sample. Further, the employer review does not seem to include public employers, non-profit organisations and small companies. It does not take account of university graduates who go on to professional practice, post-graduate study, military, diplomatic and clerical careers or those who start their

own business. One suspects, moreover, that this component of the rankings is composed largely, if not entirely, of companies that have had dealings with QS or universities deeply committed in one or another to the global MBA trade.

International Students and Faculty

The rationale for including scores for the proportion of international students and faculty is hard to understand. It is true, perhaps, that large numbers of international students could mean that a university has a worldwide reputation and a strong international presence among the faculty might suggest a search for the very best intellectual talent. On the other hand, it could have something to do with liberal immigration policies or, as in the United Kingdom, quirks in regulations about fees and admissions. It also has to be said that someone from Kansas or Moscow would have to travel a lot further before crossing a border and becoming an international student or teacher than someone from Geneva, Brussels or Singapore. We should also note that a simple statistical analysis shows that there is no significant correlation between scores for this measure and any other component except International Students. This measure does not really tell us very much about university quality although one might note that the more students there are travelling across borders, especially to do an MBA, the better it is for QS.

Student-Teacher Ratio

The score for student-teacher ratio is included as an index of teaching quality. This measure might be valuable as it would distinguish between institutions that cram hundreds of students into overcrowded lecture halls and those that provide one to one tutorials but it is one that can be easily manipulated by, for example, counting part-time teachers and graduate assistants and not counting students at branch campuses. Furthermore, it is likely to favour very small specialist institutions that are not very eminent in any other respect. Some very favourable ratios, according to data in *The World of Learning* (2002) are achieved by Southeast Asian institutions such as the Defence Services Academy in Myanmar, Cebu Doctors College in the Philippines and the Hanoi College of Pharmacy that do not seem to have accomplished very much. It also must be said

that the gap between institutions on this measure is often quite small compared to differences in the quantity and quality of research. For example, Caltech, in the eighth position in the tables, scores 100 times higher than Tsing Hua University at number 62 on the research citations component but a little less than fifty per cent more on teacher student ratio. The effect of including this measure and giving it that same weight as research citations is to drastically reduce the gap between the better universities and others.

Here we might mention that the consultants have used a norming procedure that produces serious distortions. What they do on each measure is to give the top university a score of 100 against which the others are calibrated. The effect of this is to reduce the differences between most universities on a measure, such as citations per faculty, where the top scorer is well ahead of the average institution. Conversely, where the differences between top and middle are relatively small, as is the case for student-teacher ratio and international faculty, differences between middle ranking universities become much more apparent. Thus, an improvement in the student-teacher ratio or the proportion of international faculty and students would lead to a much greater change in the overall score than an improvement in the citations score. A more appropriate procedure would have been to norm against the mean or median score.

Citations per Faculty

Looking at the specific components of the rankings, there is, first of all, the score for citations of research by other researchers. In principle, this is an excellent measure of research quality and quantity but certain problems are apparent. The consultants used Thomson Scientific's *Essential Science Indicators* Index, which lists citations in 22 clusters of disciplines. The indicators are heavily weighted in favour of the natural sciences and medicine. Economics and business have a cluster to themselves while the rest of the social sciences get one between all of them. The humanities and the performing and fine arts are not included. This index thus gives a misleading impression of overall university research activity. Furthermore, it only refers to articles in scholarly journals. Since academics in the social sciences and humanities are much more likely to publish research in books, this is a further bias against the social sciences and humanities. Masterpieces of historical and anthropological writing such as E. P. Thompson's *The Making of the English Working Class*

(1991) or J. C. Scott's *Weapons of the Weak* (1985) would simply have no impact on his index.

General Discussion

To wind up, these rankings should be approached with caution. They are biased against universities that have strengths in the social sciences, the humanities and the fine and performing arts, that do not recruit many teachers or admit many students from abroad, that prepare students for research or professional careers, public service or entrepreneurship rather than corporate bureaucracies, that are located in “minor” economic regions or countries which are not graced with QS offices.

It is very interesting to compare the research achievement of various universities in the THES top 200. Looking at the THES's own data for citations of research, summarized in Figure 1 we can see that the US, Canadian and Israeli universities are very productive. British and continental European universities come a little way behind them. This suggests that the former group suffers something of a bias unless the peer review is considered much more valid than the citation component. Basically, universities in the top 200 fall into four classes. North American and Israeli universities are markedly better at research than the others suggesting that one effect of the THES methodology is to make it very much harder for the former to get into the top 200. Then comes Japan and Europe, excluding France. The third group within the top 200 is composed of France and Asia, including Australia and New Zealand. The average research performance of universities from these places is quite limited in comparison with those of North America. Finally, in a class of their own come the universities of the People's Republic of China, excluding Hong Kong. Their research performance is well below that of the others.

United States	21.48
Israel	17.33
Canada	13.25
Japan	8.25
Europe (excluding UK, Ireland, France)	7.99
UK & Ireland	7.40
Asia (excluding China, Japan, Israel)	5.67
France	5.22
Australia and New Zealand	4.56
China (PRC)	0.66

Figure 1: Unweighted Mean of Citations Per Faculty

The effect of the peer review and the poll of employers is to create a very distorted picture of the accomplishments of the world's universities by exaggerating the quality of European and Japanese universities compared with those in North America and exaggerating even more that of universities in Australia, France and the rest of Asia. Is it just a coincidence that QS has offices in Sydney, Paris, Singapore and Beijing? These are, as we have noted, dynamic economic areas, except perhaps for France, where international business education is flourishing and where QS is very active. The gap between objective research achievement and the opinions of employers and peer reviewers is greatest for the People's Republic of China where in recent years there has been an extraordinary rise of international business education.

QS and THES would no doubt claim that their peer review and employers' ratings have uncovered virtues other than research performance. It is difficult to see any merit in this argument. Since THES describes the peer reviewers as "research-active", it is unlikely that they were rating universities on the basis of teaching quality. Moreover, the peer review is restricted in such a way that academics are really doing regional rankings and it is difficult to see why "research-active academics" should think so highly of universities, especially some in China, France and Australia, whose research attracts so little attention. To claim that these are international rankings is more than a little misleading.

There are perhaps some who would say that this does not matter very much. Harvard is always going to be number one however universities are assessed and the same places will crop in the top 10 or 20 albeit in a slightly different order. Is it of any importance if a few continental European, Asian or Australian universities are given a helping hand even if they do not really deserve it?

It is in fact of very great importance. Throughout Asia universities and education authorities are quite clearly changing policies and reassessing priorities with the objective of getting into or staying on the THES list. Universities in Malaysia are trying to increase their intake of international students, which, in a country where the distribution of university places is a major issue, could have serious political implications. It is also likely that universities will focus attention on the business education programmes that will bring them to the attention of QS or the kind of capital intensive research in biomedicine or the natural sciences that will get them into the top 100 or 200 rather than the social science research that may have far more immediate social relevance to developing

countries and which costs little or nothing. It is even possible that pressures to produce research of the kind that will boost citation ratings and attract a favourable peer review will contribute to more debacles like the Korean stem-cell research affair.

The last few years have seen some truly dramatic developments in the world of information. The old media has suffered ferocious competition from democratic and unrestricted information networks. Perhaps the THES rankings will go the same way. It is not impossible that a ranking system more transparent and accurate than THES's will soon appear. It ought to be quite practical to construct indexes based on easily accessible and verifiable public sources such as Google Scholar and other search engines or reference works such as *The World of Learning* that would be more valid, much cheaper and far more comprehensive than the THES rankings.

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