



**Global Universities Ranking Gladdens US, China, and Saddens Others
Interview with Jo McShea, Outsell Inc.**

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KENNEALLY: Whether it's the Premier League in Europe or the NFL in the United States, fans follow closely the rankings and team statistics. From Paris Saint-Germain to the Patriots, there are perpetual contenders, and every year, there are disappointments and even shocking collapses.

Welcome to Copyright Clearance Center's podcast series. I'm Christopher Kenneally for Beyond the Book. For universities around the world, parents and professors watch school rankings as closely as any football fan. Prestige matters, of course, and even more the research funding that follows. A recently released survey of global academic rankings tells us who's up, who's down, and who should be looking in the rear-view mirror.

At research and advisory firm Outsell, Inc., Jo McShea is vice president and lead analyst focused on the science, technology, medical, and healthcare spaces. She has examined the new ShanghaiRanking survey, and she joins me now from just outside London with her analysis. Welcome to Beyond the Book, Jo McShea.

McSHEA: Hi, Chris. Nice to speak to you today. Thank you for the invitation.

KENNEALLY: Well, we are looking forward to learning more about this ShanghaiRanking survey, which is a global look at the universities that we follow and learn much about in the news, in scientific journals, and elsewhere. Start with the basics here. Why does this service matter – survey, rather, matter? It's different than other surveys of its type. It's transparent. It's unaffiliated. It's comprehensive. Tell us more about that.

McSHEA: Yeah, I think that sums it up really well, actually. One of the reasons why it's so highly regarded as a ranking of academic institutions is because it has a very transparent methodology which ultimately can be reproduced should someone else

want to be able to kind of release the same findings. ShanghaiRanking is an independent organization. It doesn't have any ties to any particular institution or government agency. Equally, the data provided for the survey comes from Clarivate Analytics. So it benefits from the independence of Clarivate as a trusted, neutral stakeholder within the scholarly research ecosystem.

KENNEALLY: And the numbers of universities has really grown over time, so that we are now talking about thousands of universities, hundreds of programs.

McSHEA: Yes, exactly. This particular survey looks at more than 4,000 universities worldwide. It's focused very particularly on high-output research universities, so in that respect, it may exclude universities which are more focused on practical or applied excellence. As with all of these surveys, you need to take care to interpret the data only in the way that it allows you to. But saying that, this is a very sort of rigorous and comprehensive view of global universities.

KENNEALLY: Right. So a requirement for inclusion is that scientific output as measured by publications in journals and elsewhere. Can you tell us a bit about that?

McSHEA: Yeah, so to make the ranking in the first place, institutions need to meet a minimum subject-based publication threshold to be included. In that respect, it kind of self-selects around universities who are focused on research and publication. Publication thresholds are adjusted for different subjects depending on publication norms within those subjects. So institutions need only have published 25 articles between 2011 and 2015 in aerospace engineering or public administration to be ranked in those subjects, but you need to have published 200 publications in physics or chemistry or clinical medicine within that period of time to be included within the rankings, because those are disciplines which have a typically higher publication threshold. Once an institution has met that publication threshold, it's then part of the ranking exercise.

Institutions are then ranked within 52 different subjects across five overarching disciplines, so natural sciences, life sciences, medical sciences, engineering, and then social sciences. They are then scored against four key indicators which are then also weighted for the different subjects, and the ranking comes out as a result of that.

KENNEALLY: All right, Jo. Before we go on, can I ask you just to move the microphone a little bit away from your nose or your mouth, because it's catching some of your breath. That'll be better, I think. OK, great. Thank you.

Let's get to the stats, then, Jo McShea, because I think that's what people are interested in. It's rather like the Olympics or the football teams. Who comes out ahead? What nations are doing well? Who's the top?

McSHEA: You'll be pleased to hear that the US has come top in terms of nations in this particular version of the survey. So 32 out of 52 subjects included were topped by

a US university, including three out of the four natural science disciplines, all six of the medical science disciplines, and then 12 out of 14 of the social science disciplines. China followed the US, with eight subjects being topped by a Chinese university. Interestingly, seven of those were in engineering disciplines. The Netherlands came third, topping five subjects. Then the UK achieved top ranking in three subjects.

KENNEALLY: Which universities ranked best overall? Then tell us about some surprises.

McSHEA: In terms of individual universities, Harvard was the best performing overall, which may not come as a huge surprise. It topped the ranks in 15 different subjects, including seven in social sciences and four in medical sciences. MIT came second, topping five subjects in total. Again, unsurprisingly, four of those were engineering-based. Overall, US universities appeared most times across all of the different league tables by some margin. But again, Chinese universities followed that, with UK universities coming third.

What was really interesting, though, as you mentioned, is that Ohio State University, Columbus, and the University of New South Wales in Australia came up top in terms of the greatest breadth in terms of their research quality. Both of those universities appeared in 50 out of the 52 subject league tables. They were the only two to have done that, which I think will be a surprise to some.

KENNEALLY: I'm sure they're thrilled there in Columbus and in Australia. But the question really is why all this matters. As you say, for some Americans, it's great to know that we're number one. But that's not really that important, after all. What is important is it's about research. This is a snapshot of the research world, not just the rankings of universities, a kind of beauty contest. So we see the US remains dominant. We see China on the rise. Tell us why this is important.

McSHEA: As you say, the dominance of US institutions is a kind of clear headline finding, but it underlines a kind of position that has been relatively static in terms of the US being sort of a leading, high-quality research nation – which is obviously great, but not necessarily the most notable finding.

But the rise of China is really interesting, I think. It overtook the UK for the first time this year in terms of the number of universities within the rankings as a whole. I think that serves as another indicator of an increasing focus on quality of research as well as quantity of research that's coming out from China. There was a *Nature Index* supplement published last year, for example, which focused on countries demonstrating significant growth in high-quality research publications, and 40 of the top 100 most improved institutions between 2012 and 2015 were from China. The citation impact of China's collaborative research papers, for example, has also increased over the past decade, and its researchers are more often taking a leading role in international research collaboration, which is highlighted in another report out of Clarivate Analytics and China's National Center for Science and Technology Evaluation.

So I think the importance of its scientific reputation to China is kind of increasingly clear, and again was illustrated pretty clearly just last month, actually – or last week, even – when it was announced that 400 researchers which were listed as authors on 100 retracted papers are facing some of the harshest disciplinary actions because they were involved in those retracted papers. Researchers are seeing promotions canceled. They're having honors and grants and funding removed from them. And some institutions are even barring their scientists from pursuing their research as a result of their participation. So I think quality of research in China is increasingly important to them.

KENNEALLY: Reasons for optimism, at least, if you're in China, and it's great to hear about that battle against – or I should say in favor of higher quality for the research coming there. As you know, we're familiar with the volume, but it's the quality that will matter.

There in the UK where you are, there might be reason for concern given the context, given the timing of this, with Brexit looming and the general uncertainty around research funding that that brings with it.

McSHEA: Absolutely. China overtaking the UK is a real concern, I think, given the sort of ongoing uncertainty over Brexit and what that will mean for UK universities in terms of the levels of funding available to the UK research and scientific sectors once the country leaves the EU. Only a small percentage of EU and European Research Council funding over the past 10 years has actually gone to nonmember states, and up until now, the UK has been the second-highest beneficiary of EU funding over the past 10 years, behind Germany. There's evidence coming out of a report that *Digital Science* published last year that highlights only 8%, I think, of total EU funding over the past decade went to non-EU members. So I think that will be absolutely of concern to the UK going forward.

KENNEALLY: And these numbers also point to some countries that should be more than just a little concerned, because in fact they're not living up to expectations, or in some cases on the decline. That's true in Japan.

McSHEA: Yeah, in the ShanghaiRanking, Japanese universities only achieved a top 10 ranking in five subjects. As you say, that's kind of another indication, I think, of the current period of decline in the Japanese research sector. That's come about as a result of chronic underinvestment in the past decade or so, which I think is where the warning to the UK is particularly stark.

The government in Japan is acknowledging the challenges that the scientific and research sector faces, and we should say that Japan remains a top five research nation according to the 2016 *Nature Index*, but its research output has fallen in absolute terms over the past four years. It was down by 8.3% between 2012 and 2016. Whereas the UK, for example, was up 17.3%. China was up enormous – 47.7%. But it's also publishing fewer articles in 2015 than it was in 2005 across 11 out of 14 fields examined by Clarivate Analytics as well.

I think that just goes to show how a lack of investment can really come home to roost. Annual grants to national universities declined in Japan over the past decade. You have postdoctorates who are being put on contracts rather than permanent employment. As a result, many decided not to pursue research as a career going forward. I think that they're now reaping the harvest of that lack of investment.

KENNEALLY: Russia doesn't typically appear in a lot of assessments of the research community, but it certainly has ambitions to be there. How well are they doing?

McSHEA: I think given Russian ambitions around wanting to see its highest-ranking research institutions getting into these kind of global rankings, it would probably have been quite disappointed by the results coming out of the Shanghai Ranking survey. None of its universities achieved a top 10 ranking in any of the 52 subject areas. That comes at a time when the Russian government, for example, has a target for getting Russian institutions into those rankings. There's a project called Project 5-100, for example, which aims to maximize the position of a group of leading Russian universities and getting them into the top global rankings by 2020.

On the other hand, though, it might be that this particular survey just has been released a little bit too early to start seeing some of those things. Russian government investment seems to be working to some extent if you look at other metrics. InCites data from the Web of Science, for example, highlights a rise in the percentage of Russian publications within Web of Science since Project 5-100 was launched, after a really steady decline between 2000 and 2012. So I think it might be – watch this space, I think, over the next couple of years for Russia. Although at the same time, macroeconomic and political headwinds may have an impact there, too. Russia's total R&D expenditure, for example, has declined in both 2016 and 2017, which I think obviously has an impact on the research and scientific sectors.

KENNEALLY: Your analysis, Jo McShea, really points to the fact that this is an interconnected world. The research community, the university community, hardly exists on its own. Its standings, its prestige, is a function not only of the research conducted, but of the funding that it receives, of the national context that it lies within. It's a web of connections. So if Harvard is the top-ranked university in the world, it's not just because those Harvard professors are the best. They live in a community and are surrounded by a community that supports their work.

McSHEA: I think that's right. Fundamentally, what we see is that unless you have a thriving research and innovation sector, global positioning, national competitiveness, and economic growth are all under threat. I think that the experience of Japan in particular serves to highlight that.

KENNEALLY: Jo McShea, vice president and lead analyst at advisory firm Outsell, Inc., thanks for joining us on Beyond the Book.

McSHEA: Thanks, Chris. Great to speak to you.

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