

World university rankings and leadership: global analysis and methods for improvement

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Abstract This paper focuses on the analysis of world university rankings and suggests methods for improvement of standing in those rankings for universities and higher education institutions. There is a multitude of university rankings worldwide, yet some of them are considered to be more prestigious than others. Currently, the top positions in the ranking belong to the universities from the United States (e.g. Ivy League institutions), or such renown universities as Cambridge or Oxford. However, in the recent years there has been also a rising tendency in China and Russia to have some of their universities ranked among the top world higher education institutions. Our findings show that the university rankings represent a complex and everchanging mechanism that requires deeper understanding in order for sorting out the methods for improvement.

1 Introduction

University and university rankings are rankings of universities and higher education institutions (HEIs) that have been ranked based on various combinations of factors (Marginson and Van der Wende 2007; or Hazelkorn 2015). Yet, some authors state that none of the rankings provide a comprehensive view of the strengths of the rated institutions, as they all select a set of easily quantifiable features that underpin their outcomes (Strielkowski 2015; Vernon et al. 2018). Some of the rankings are even often done by magazines, newspapers, websites, governments, and very few by academics. Various ranking not only value entire institutions, but also certain programs, departments, and schools which makes the whole matter even more difficult.

Ratings in higher education are a popular and sought-after tool for managing and informing consumers on educational services (including the earning gap (see Humpert 2013)). Meanwhile, rating is one of the approaches, within the framework of an independent system for assessing the quality of education, to provide the public with the information on the performance of educational organizations.

The history of international ratings of educational organizations dates back to 1983, when the first ranking of US News and World Report from the top 50 American universities was published. A greater number of countries and organizations were willing to compile ratings of educational organizations. In 1971, the Times Higher Education rating was published in the UK, becoming today one of the most popular ratings in the field of ranking educational programs. Various methodologies for compiling ratings have been discussed since then. As a response to the social request, in 2004, the European Centre for Higher Education (UNESCO-CEPES, Bucharest, Romania) and the Institute for Higher Education Policy (Washington, USA) initiated an international expert group on ranking IREG (Observatory on Academic Ranking and Excellence). Later in 2006, an agreement 'Berlin principles for ranking higher education institutions' was adopted, that described the principles of quality and good practice in ranking universities. The aim of the action was to create a basic scheme for developing and disseminating ratings,

regardless of whether they are national, regional or global, which should lead to the creation of a system for continuous improvement of the ranking methodology. IREG today is an umbrella organization with 55 members, including 10 organizations from Russia. Currently, three global ratings (the so-called the Big Three) are most widely used:

- Times Higher Education (THE) World Universities Rankings,
- QS World University Rankings,
- Academic Ranking of World Universities (ARWU).

Traditionally, the highly ranked universities at the top of the list could be found in the United States, United Kingdom or European Union (EU) countries. Nowadays, the balance is shifting to other countries that are striving for ensuring their universities leading positions in the world university rankings. China, Russia, or Latin American countries are pushing hard to improve the quality and the output of their higher education and to seize the top places in the global education hit parades.

Russian universities have actively joined in the struggle for a worthy place in the international rating systems. The Ministry of Science and Higher Education of the Russian Federation supports these undertakings. The '5/100' project was initiated with the aim to ensure at least five Russian universities enter the first hundred leading world universities of one of the three global ratings - THE World University Ranking, Academic Ranking of World Universities, QS World University Rankings by 2020. The budget for the project in 2013-2017 amounted to 60.5 billion rubles. Fifteen universities participate in the project, which is only 2% of the total number of all universities in Russia.

Generally, rankings are an external evaluation of the HEI's; they facilitate transparency about systems of higher education. Ratings are intertwined with the quality assurance as there is a clear relationship between those procedures at a system level.

Since the 90s, most European countries have introduced accreditation procedures for educational organizations. Accreditation agencies boosted in Europe due to signing the Bologna Declaration, which stipulated the conditions for the integration of national educational systems: comparability of qualifications, mobility of students, teachers and educational programs, creation of compatible quality assurance systems. In the process of globalization of the system for quality assurance in higher education, accreditation agencies started to join into networks (Jöns and Hoyler 2013). The first International Network for Quality Assurance Agencies in Higher Education (INQAAHE) was founded in 1991. The network includes 280 accreditation agencies, and other organizations interested in the quality of higher education institutions. The INQAAHE network is the first, most ambitious and recognized organization dedicated to the theory and practice of assessing the quality of higher education worldwide. Moreover, there are several networks of quality assurance agencies in higher education:

- The International Network for Quality Assurance Agencies in Higher Education
- Council for Higher Education Accreditation
- The European Association for Quality Assurance in Higher Education
- The Central and Eastern European Network of Quality Assurance Agencies in Higher Education
- The Asia-Pacific Quality Network

other agencies, developing and entering the network, created registers. There are three most recognized registers:

- Washington Accord
- The European Quality Assurance Register for Higher Education (EQAR)
- Asia-Pacific Quality Register (APQR)

Accreditation is a quality assurance procedure that evaluates whether a program or university meets academic and professional standards. Any system for assessing the quality of education has its benefits and pitfalls. Among the disadvantages of the accreditation system are: the relative high cost of the procedure, binary assessment (accredited / not accredited), comparison in the accreditation system is with the standard, but not with other universities; additionally, the accreditation procedure is held once every 5-6 years (Horstschräer 2012; Vernon et al. 2018; Olcay GA and Bulu M 2017). However, accreditation has certain advantages: a high degree of reliability of the data, since the professional community with the involvement of all stakeholders carries out the assessment at the university. Accreditation helps to improve the quality of education and improve the activities of the university based on the recommendations of experts and enhances the attractiveness of universities for applicants (primarily foreign, in the case of international and joint accreditation). While, the advantage of the rating is the complex nature of the university's assessment; furthermore, this method is rather comprehensive and relies on a relatively simple mathematical apparatus. As a rule, the rating rests on expert assessments of a wide circle of the public and on statistical data obtained from universities.

This paper scrutinizes world university rankings and provides methods for improvement for universities and higher education institutions, which wish to rise in those rankings. It describes the ways to integrate the proper

instruments into the internal quality assurance system of HEI to ensure the mechanisms for leveraging the quality of higher education are in place and help to comprehend the value along with restraints of rankings to avoid bogus or quixotic expectations of rankings.

2 University ranking and rankings

In the QS-Hochschul-Weltrangliste, only the top 500 institutes receive individual rankings (the same applies to the top 200 in the university ranking). Exact ranking positions are not published, as it is difficult to differentiate exactly at this level. One can also search online for a national ranking of universities in the respective chosen study goal. There may even be variations in the results published by a single organization (Pavel 2015).

The 2020 edition of QS world university rankings has 1,000 universities around the world. Times Higher Education ranks at 1,250 colleges, while the Shanghai Ranking (ARWU) ranks in the top 500. The QS World University Rankings are published annually in June and the Times Higher Education World University Rankings annually in September.

Indian University enters the Top 1000 in the prestigious QS ranking of universities. With 50 new entrants worldwide, some young universities also have a chance to be included and to receive the award. Out of more than 28,000 universities in the world, QS rated only the top 1001 in terms of their performance criteria.

The Monash university is one of the largest student institutions in Australia and accommodates a total of 65,000 enthusiastic minds. About 8,000 academic staff make up the intellectual backbone of the university, where they spend hours researching alongside student lectures. The Monash Business School is one of fewer than 70 triple accreditation institutions by the Association of MBAs, the European Quality Improvement System and the Association to Advance Collegiate Schools of Business.

United States host the majority of universities in top 100 list. For example, Harvard University has traditionally been in the top 10 of the best world's universities. An institution serving students since 1636, Harvard has plenty of time and resources to complete its business and business research and education programs. In addition to the name's prestige, Harvard has built a large network of faculty members and alumni around the world, with more than 300,000 alumni in more than 200 countries. Apart from the classic education, Harvard University invested into its Business School that became one of the best in the world. The HarvardX initiative to improve online and distance learning reaches over 1,000,000 students from 195 countries worldwide. Not only does Harvard Business School offer some of the best business programs in the world, it also has a unique history and reach.

Yale, one of the Ivy League's leading institutions, has a history dating back to the 1640s, with a significant historical and global impact on the academic world. Most of the international study and networking is organized through the Whitney and Betty MacMillan Center for International and Area Studies. The Yale School of Management was founded with the aim of educating business and social leaders.

As one of the nation's first public universities, the University of Michigan has always endorsed progressive goals. The academic scope of the school includes 17 centres and programs with global themes covering more than 65 languages. The Institute of International Education ranked sixth in the country in terms of international studies.

In Italy, one of the most prestigious and highly ranked universities is Bocconi University which was founded in 1902 and was the first university in Italy to graduate in Economics, focusing its teaching and research on business, business and law. Bocconi University offers students an elite education and access to large companies and international agencies. Students study at a school that focuses on simulations, group projects, and case study analysis.

In Korea, Seoul national university (SNU) is considered to be the most prestigious college in South Korea, hosting 28,000 students in programs managed by 15 colleges, 11 vocational schools and a graduate school.

The SNU Business School offers a major business subject for students requiring both general and 48 undergraduate degrees (including business electives). As one of the best business schools in the world, SNU offers freshman education for new students, the development of learning skills and opportunities for research projects. It offers over 200 undergraduate and graduate programs, including nine joint doctoral programs with San Diego State University and other California universities. It has 10 schools and colleges (including six residential colleges), including the Scripps Institute of Oceanography (existing before UCSD), the Skaggs School of Pharmacy and Pharmaceutical Sciences, and the Rady School of Management. For example, the University of California San Diego (UCSD) has six elementary schools, five graduate schools, two professional medical schools and operates four research institutes. From research into alternative energy sources to curing cancer and other diseases, leading universities are not afraid to challenging issues that have global implications.

The Russian government is launching to improve its global competitiveness and, for example, is sending more students abroad to study at elite universities. Russia is also taking steps to revise its own higher education sector due to its poor performance in the global university ranking. After an independent examination of its

universities, 15 were selected to receive special grants to improve their compliance with the evaluation criteria (Rodionov et al. 2016).

The obvious benefit of the rating is its frequency - it is annually published, as well as independence - conducted by independent organizations. However, the rating, to one degree or another, attempts to measure a variety of aspects, taking into account only those indicators that allow quantification. While compiling a rating, there is a high risk of providing counterfeit information. However, the results of public accreditation can serve a basis for brand-new technologies for assessing the quality of education. So far, not a single accrediting agency has been involved in rating building. The project The Best Educational Programs of Innovative Russia is an example of how, by using the results of public accreditation, to build a rating of educational programs, and to define educational programs that differ in the highest level of graduates' training. The new technology, based on open Internet survey method, assumes the assessment of individual educational programs, but not the university as a whole, which makes it possible to draw attention to the quality of education. All data used to compile the rating are taken from open sources and provide for the possibility of clarifying and / or checking the data submitted. The object of an independent assessment of the quality of education is educational programs offered by educational institutions. The procedure acquires involvement of public and social-professional organizations, non-governmental, autonomous non-profit organizations, individuals as external experts. The evaluation result is an aggregated assessment of expert opinion and the achievements of the educational program. Achievements of the educational program are expressed in two indicators: student achievement (students' learning outcomes) and external review. Experts take into account students' victories in Olympiads, contests, competitions, personal and state scholarships, monetary and academic grants, and certificates of academic achievement.

The rating contains feedback mechanisms by which users or educational organizations participating in the rating can get explanations about the methodology applied or send their comments. Based on the results of such an assessment, a league table can be built up to inform about the quality of the educational program and its transparency to independent assessment systems.

The table consists of six leagues; each league is assigned a certain number of stars (the analogue is the hotel star rating system):

Table 1. Applying star system for rating educational programs

Star rating system	Description
Zero League (no stars)	Programs that are informationally closed or have very low rates.
League One (one star)	Programs that are winners of the project the Best Educational Programs of Innovative Russia. Each winning program is a contender for professional, public, international or joint accreditation.
League Two (two stars)	Programs that are the winners of the project the Best Educational Programs of Innovative Russia and have conducted the self-evaluation procedure for compliance with the Bologna principles.
League Three (three stars)	Programs that are included in the list of the 'best' and have passed national or international accreditation by a recognized accreditation agency.
League Four (four stars)	Programs that are included in the list of the 'best' and have had international or public accreditation by a recognized international accreditation agency (agencies registered in the European Register of Accreditation Agencies EQAR or the Washington Accord).
League Five (five stars)	Programs that are included in the list of the 'best' and have had joint international accreditation. This is accreditation, which is carried out in conjunction with a recognized foreign accreditation agency partner with the issuance of two certificates of joint international accreditation (Russian and foreign).

Source: Own results

Thus, an innovative model of building a national quality assessment system is suggested, which shows the strengths of rating and accreditation procedures and is characterized by: program level of assessment; taking into account the achievements of students (including independent testing); attracting a large number of stakeholders.

3 Methods and pathways for improvement

In general, high education reforms could combine quality measures with funding quotas, subsidies for innovation and improvement in teaching and research in order for them to receive public funding.

Table 2. Criteria and performance indicators, advancing universities in international rankings

Criteria	Performance indicators
Internal quality assurance system of the educational process, that takes into account International quality monitoring standards of university training	<ul style="list-style-type: none"> - Strategic plan for promoting the HEI in the ranking system and a plan of practical measures; - an employer/employee responsible for coordinating the promotion; - the availability of information about the procedures and criteria for evaluating the results of educational activities of students; - ongoing improvement of the quality assurance system; - procedures for assessing the degree of satisfaction of students and graduates with the quality of education;
International components in the design and implementation of an educational program	<ul style="list-style-type: none"> - compliance of the educational program with international requirements for ensuring the quality of the educational process; - selection of general / transversal and professional competencies, prescribed through learning outcomes containing international and intercultural aspects; - the use of teaching methods (mainly active and interactive), aimed at including students in an international dialogue on issues related to their future professional activities and life in a multicultural environment; - the use of foreign sources as the main and additional literature;
International educational and research experience of teachers	systemic involvement in the educational process: <ul style="list-style-type: none"> - foreign invited professors; - teachers with international experience in teaching and research; - teachers involved in international research projects carried out jointly with foreign partner universities; - the involvement of teachers in the international professional pedagogical community;
Involving students in international dialogue during the educational process	<ul style="list-style-type: none"> - academic mobility of students; - participation in international educational and research projects; - the formation of general and professional competencies that meet the requirements of pan-European and international educational and professional standards and recommendations; - English language proficiency at the B2 level (according to CEFR); - the participation of students in extracurricular activities;
Sufficient resource support meeting the goals and objectives of the HEI	<ul style="list-style-type: none"> - international partnership agreements for educational and research cooperation; - University financial support for promoting the HEI in the ranking system; - high level of material and technical base of the university (laboratories, libraries, dormitories, etc.); - University language center.

Source: Own results

Each country has its own national higher education goals. However, none of them wants to develop its educational system as an autarchic system. In the era of Internet, global inter-connectedness and social networks, education and research has become truly international. Hence, there is a goal of every government to foster its

higher education institutions to become truly international, highly prestigious, and globally recognizable (Lukman et al. 2010).

The university assessments typically consist of a variety of methods and strategies that include both checking the quantitative output and verifying the qualitative criteria. During such assessments, university staff, lecturers, researchers, administrators, and students are scrutinized and assessed (Daraio et al. 2015; Perez-Esparrells and Orduna-Malea 2018). The techniques that might be involved include focus groups, surveys, structured or semi-structured interviews, as well as the analysis of the data from the secondary sources.

In addition, an important issue of university evaluation is gender equality. Yet another serious criterion is the university policy towards students with disabilities which clearly indicates whether this or that HEI is fully prepared to all the challenges of the modern world (Stodden 2000).

An important aspect of the evaluation is the employers' opinions and satisfaction with the human resources that are provided by the universities (Millot 2015). Many HEIs work closely with the employers in order to make sure that all graduates will have equal chances in finding their places at the job market.

Speaking about the methods and pathways for improvement, there are some key principles and approaches that can be used.

The identified criteria and indicators should be considered in the aggregate, since only their integrated application can lead to an effective university performance in international rating systems (Hassan et al. 2011; Sidorenko and Gorbatova 2015). The presented set of criteria and indicators does not claim universality: depending on the university's mission, goals and objectives of the educational process, universities and individual educational programs can vary the content of the criteria apparatus, including assigning numerical values to selected indicators.

4 Conclusions and implications for the global education

The study of university leadership in the world has allowed for defining the following fundamental structural and organizational conditions that could help advance universities in the international rankings:

1. The participation of universities in such external assessment procedures as academic ranking, accreditation and auditing held by authorized national and international agencies contributes not only to assessing the results achieved by the university, but also to information gathering for conducting comparative analysis regarding the results of universities in order for determining the possibilities for growth.

2. Updating the content of curricula in accordance with international educational and professional standards and recommendations in a particular field may improve the system of higher education in general. Newly designed academic programs will prepare students for a life and work in a multicultural environment by integrating international aspects into not only the content of education, but also the methods of teaching and assessing the educational activities and students' performance. The result of these initiatives can be an increase in the number of joint / double diploma programs, the development of academic mobility and the transfer of credits of students participating in mobility programs, etc.

3. The implementation by language centers of courses for teachers - training courses in academic writing, public presentation in an international context, writing an application for project financing – all these courses may enhance the quantitative and qualitative indicators of teachers' participation in international educational and research activities. The results of numerous surveys show that teachers who studied at language courses / intercultural communication courses / academic writing / international project management more often answered positively to questions about the availability of articles in international journals and the availability of applications for international research grants.

The study of the constructive experience of the world universities facilitated conceptualizing two main ideas - the ideas of the comprehensiveness and contextuality – that we find rational and promising in terms of their possible use in the planning, implementation and evaluation of strategies and initiatives for advancing HEIs in the rankings.

The idea of comprehensiveness is in the integration of the international ranking component into every element and stage of the educational process; all strategies and initiatives are interconnected, implemented systematically and aimed at achieving a common goal: improving the quality of education - due to close interaction of all university units involved.

The idea of contextuality is manifested in the condition of the latter on global, international, national, institutional and program conditions for the implementation of the educational process, taking into account the identity of a particular university and individual educational programs, as well as preserving the cultural and historical traditions of the national higher education system.

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