

Ranking Model : Study & Algorithmic Approach towards Common Ranking for Higher Education Institutes

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ABSTRACT

Indian education system is one of the largest education systems in the world which comprise of Universities, Colleges, Technical Institutions, Institutions of National importance etc. Choosing the right Institution for the academic activity is always a challenging job. Competition between Universities, emerging of new Institutions with adequate infrastructure etc. makes difficulty to select the desired Institution in county. As many ranking agencies are available in other countries to rank various Institutions, India Rankings is an initiative of MHRD (Government of India) to rank the educational institutions in the country. This article is exploring the different agencies of the ranking model and their parameters. It also covers that assessment / evaluation of decisive parameters using algorithm (decision theory approach) because weightage of same parameters in different ranking model are different. It tends towards global ranking using common weightage across all countries and their ranking agencies.

Keywords: Ranking System, University Ranking, Ranking Parameters, Higher Education Ranking, India Ranking, National Institutional Ranking Framework (NIRF), Times Higher Education (THE), Quacquarelli Symonds (QS), Academic Ranking of World Universities (ARWU)

I. INTRODUCTION

Albert Einstein told “Not Everything that counts can be measured. Not everything that can be measured counts”. Why Rank Institutes? To serve as a guide to students for the selection of universities based on set of criteria. To help universities to improve their research performance and its quality (major criteria is used in all rankings). To help the universities to identify areas of improvement and to become better at education students and conducting research. To help industry and employers to target specific students programmes and projects for hiring and research. To provide a stable formula or frame work for ranking Indian Universities. To achieve the higher ranks in global ranking.

A. World Ranking of Universities

The three longest established World Rankings are those produced by Shanghai ranking consultancy (the Academic Ranking of World Universities- ARWU), Times Higher Education (THE) and Quacquarelli Symonds (QS). All of these, along with other world rankings, primarily measure the Research performance of universities rather than their teaching.



Figure 1: World Ranking Systems of Universities

B. Parameters and Weightage of Global Ranking Systems

1) *Academic Ranking of World Universities (ARWU)*: ARWU was first published in June 2003 by the Centre for World Class Universities (CWCU), Institute of Higher Education of Shanghai Jiao Tong University, China, and updated on an annual basis. Since 2009 ARWU has been published and copyrighted by Shanghai Ranking Consultancy. ARWU also known as Shanghai Ranking. The ranking considers all the institution with the fields' medallist, highly cited researches, and papers published and paper indexed.

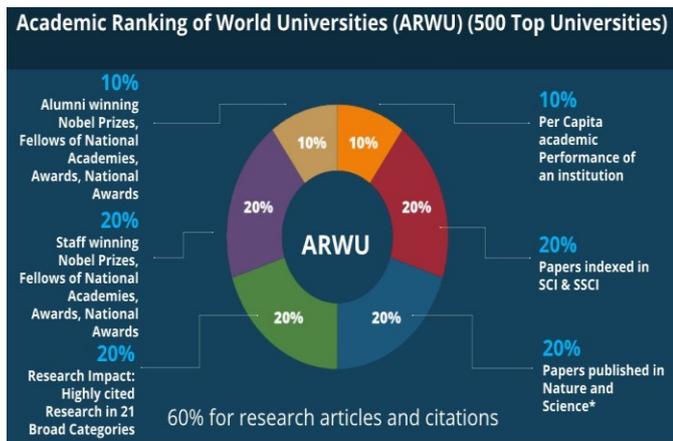


Figure 2 : ARWU Parameters with their Weightage

2) *Times Higher Education (THE)*: THE world university ranking lists the top universities in the world. Their core missions are teaching, knowledge transfer and international outlook. The Times Higher Education world university rankings, founded in 2004, provide the definitive list of the world's best universities. THE splits from its original partner Quacquarelli Symonds (QS) in 2009.

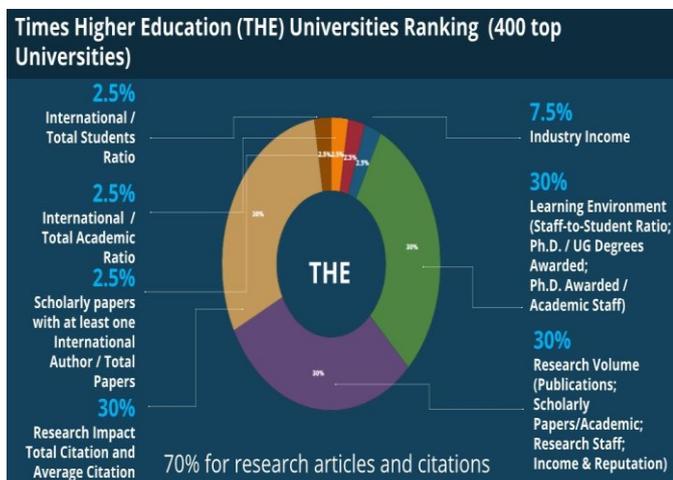


Figure 3: THE Parameters with their Weightage

3) *Quacquarelli Symonds (QS)*: QS world university ranking is a ranking of the world's top 500 universities by QS since 2004. QS Rankings were originally published in collaboration with Times Higher Education, and were known as the THE-QS World University Rankings. QS assumed sole publication of existing methodology and Times Higher Education split in order to create a new ranking methodology in 2010, which became the THE World University Rankings.

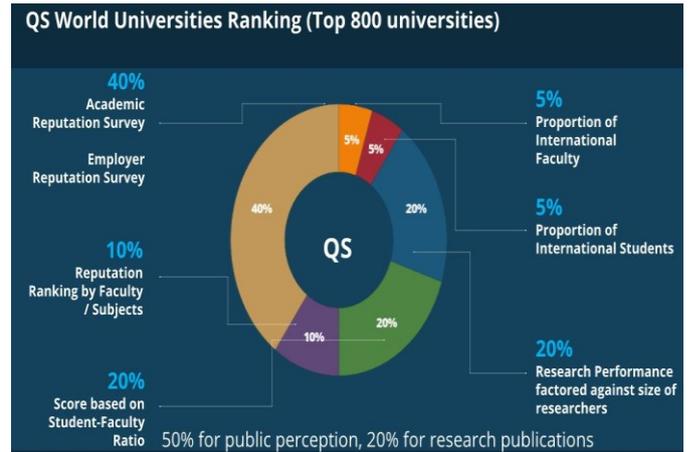


Figure 4: QS Parameters with their Weightage

C. Parameters and Weightage of India Rankings

The NIRF provides for ranking of institutions in five broad generic parameters, namely: a) Teaching, Learning and Resources; b) Research, Consulting and Collaborative Performance; c) Graduation Outcomes; d) Outreach and Inclusivity; and e) Perception.

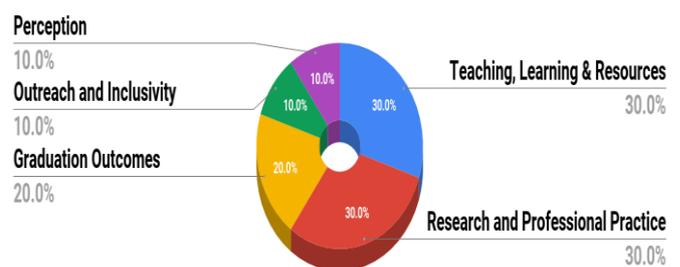
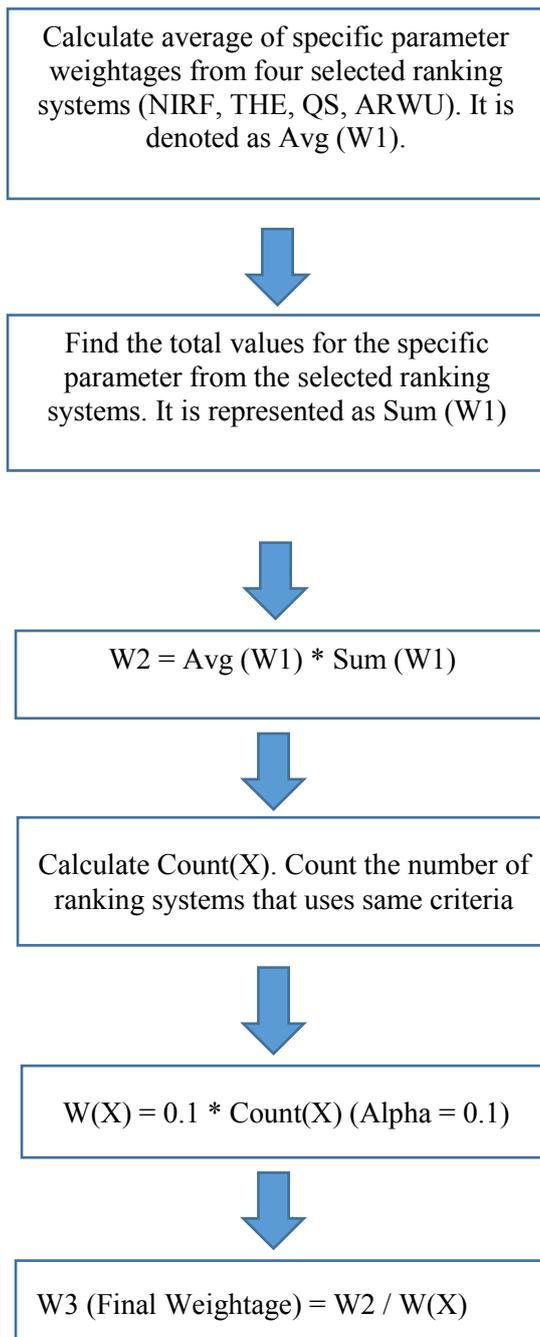


Figure 5: NIRF Parameters with their Weightage

II. METHODOLOGY

The global and national ranking systems follow different parameters for ranking universities. These different parameters are assigned with some weightages. The

differences in weightage for each and every parameters of different ranking systems produce different outputs from each other. To find out balance between distinct weightages we have applied the average approach (without using probabilities) of decision making theory. Here, we have considering three parameters a.) Teaching-Learning b.) Research Practice and c.) International Outlook and use the existing global and national ranking systems weightages. To find out balance weightage for parameters, we have applied following algorithm by using average approach.



Here, W3 is the Parameters Weightages.

III.RESULTS

Following Figure shows the weightage comparisons of selected parameters of various ranking systems with our calculated weightage outputs. It shows the balanced weightage among all the ranking model.

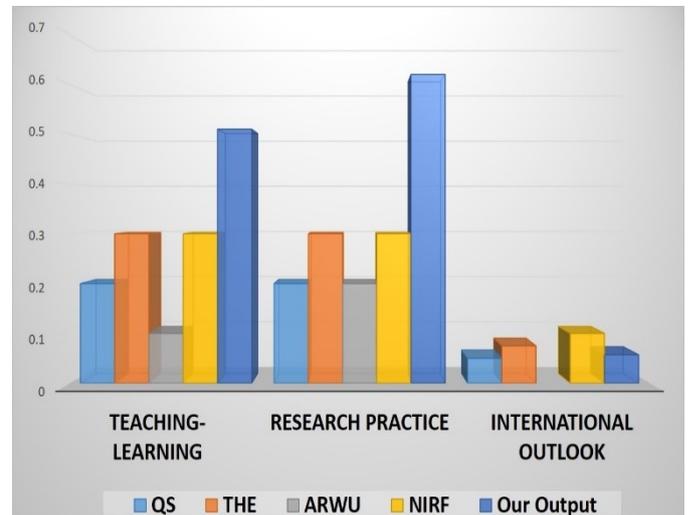


Figure 6: Correlation Chart for weightage of parameters from various ranking systems and our calculated outcomes

IV.CONCLUSION

The higher education in India is need of infusion of quality and clarity in its approach towards building world class universities in the Indian context and the environment. New benchmarks of quality need to be defined and put in place to help overall system to move up on the quality spectrum. Research assessment and national ranking of Indian universities can play an important role in improving performance and quality of academic institutions. One more aspect which is very much important in global scenario i.e. common ranking across globe need common weightage. Moreover, web tool need to be evolved to display ranking on the basis of different ranking agencies and their parameters.

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