University Ranking And Accreditation Frameworks: A Comparison Between Global And Indian Agencies With Respect To Research, Innovation And Extension

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Abstract
Evaluation agencies use university rankings to gauge the caliber of outreach, research, teaching, and services. Quality is the basis for both ranking and evaluation. Universities are evaluated in order to create incentives for progress. The Academic Ranking of World Universities (ARWU), Quacquarelli Symonds (QS) World University Ranking, Times Higher Education (THE) World University Ranking, National Institutional Ranking Framework (NIRF), and National Assessment and Accreditation Council (NAAC) are the major international and national university ranking frameworks that are compared in this paper based on research, innovation, and extension criteria. Prestigious Awards, medals and citations are prioritized by ARWU as a way to highlight student achievement and recognition on a global scale. A wider picture of research impact is provided by QS and THE, which take into account international research relationships and research income. Research productivity, innovation, and community involvement are the main foci of NIRF and NAAC, which offer a thorough evaluation that honors both social and academic contributions. According to the investigation, NIRF and NAAC offer more insights into faculty excellence and the impact of worldwide research than do ARWU, QS, and THE.
Keywords: *University Ranking, Accreditation, Research, Innovation and Extension*

I.   Introduction

Higher education is an educational institution that provides learning services for the community to master high-level knowledge (Sitopu et al., 2024). Higher education has a function as a producer of change agents who are able to encourage and pioneer change in various aspects of modern society. In line with these changing demands, universities must improve themselves by being quality oriented (Aslan & Shiong, 2023; Simkin, M. G., 2010; Tubagus et al., 2023). The development and popularity of higher education ranking systems has increased competition among universities, and many scholars concur that these systems, as well as the annual rankings they publish, have had some impact on all participating institutions (Espeland & Sauder, 2015; Hazelkorn & Ryan, 2013; Rauhvargers, 2014). Global rankings of academic institutions are linked to the concept of a world-class university (Altbach, 2004; Altbach, 2011; Kaba, 2012; Salmi, 2011; Salmi & Saroyan, 2007). According to Altbach (2004), "ranking among the foremost in the world; of an international standard of excellence" is the definition of "world class" as given by the dictionary. Rankings are said to have altered the nature of higher education (Shehatta, and Mahmood, 2016). They are attractive to a wide range of stakeholders, including legislators, funding agencies, parents, organizations, academics, and students. It is crucial to make sure that higher education institutions are consistently pushing the boundaries of knowledge and innovation. Institutional development includes a management vision, available funding, the quality of instructors, assessment procedures and outcomes, infrastructure, and the institution's successes at all levels (Hussain, M. I. et.al., 2022). Higher education has had a hard time dealing with problems like unintentional growth, educated unemployment, uneven growth, the commercialization of education, financial crises, and the digital divide between quantity and quality, equity and excellence, and creativity and conformity. These problems are long-term threats to higher education (Sharma, A., Prakash, A. R., & Nehru, R. S. S., 2022).University administration

cares about rankings to draw in the best faculty and students, academics use them to find jobs and research opportunities at universities, and governments want to know if public funds allocated to universities are producing world-class higher education systems (Johnes, 2018).

Quality is one factor affecting enrollment and with the expected decline in enrollment for HEIs, quality becomes more especially important (Clemons, R. & Jance, M., 2024; Kustiawan, M. et.al., 2024). The notion of world Class University is determined by utilizing four distinct pillars: research quality, teaching quality, graduate employability, and international outlook (Rauhvargers, 2011). The methodologies, indicators and selection processes vary considerably across international rankings (Rauhvargers, 2011; Salmi & Saryon, 2007; Tofallis, 2012). Several scholarly works have examined the research methods utilized by global rankings. The choices made about the indicators and weightings are the most crucial aspects of the ranking process (Huang, 2012). Due in large part to "the rationalistic mantra of accountability," global rankings have a significant impact on higher education around the world (Birnbaum, 2012). Similar to this, Hossler (2000) has observed that the evolution of academic rankings can be attributed to "public interest in accountability and assessment" (Pike, 2004).

As an alternative to building world-class universities from the ground up, advancing internationalization of higher education through partnerships with them offers a workable solution to the problems pertaining to three main issues: research, global competencies, and educational quality (Gupta & Gupta, 2012; Matthews, Sibal & Prasad, 2012). Dawson (2017) talked about how innovations and expansion have affected the higher education sector as a result of globalization. He claims that globalization has affected teaching practices in many nations in addition to altering the performance standards for institutions. To create a more collaborative learning atmosphere, new equipment and tools are being introduced. The increasing trend of incorporating consumerist behaviors into the teaching-learning environment has been criticized by Giroux (2015). Additionally, he has disregarded the requirement for verification from for-profit sources of evaluation and rating for international universities. Fulford (2016) has been quite rigorous in his evaluation of institutions based on global performance metrics, prioritizing the assessment of socioeconomic status. His investigation and analysis show that using the same ranking criteria for institutions from various economic systems is pointless. Ikazoboh (2016) has highlighted that a balanced approach to global public education policy is necessary to achieve a satisfactory ranking system. Once more, the political and socioeconomic settings serve as differentiators for a common ranking system (Marisha, Banshal, and Singh, 2017).

There have been ongoing efforts to rank higher education institutions worldwide ever since Shanghai Jiao Tang University released the Academic Ranking of World Universities (ARWU) in 2003 (Prathap, G., 2022). The most reputable and well-known international rankings are by far the Academic Ranking of World Universities (ARWU), Quacquarelli Symonds (QS) World University Ranking, Times Higher Education World University Ranking (THE) (Shanghai Consultancy (2024), QS Quacquarelli Symonds Limited (2024), & The Times Higher Education University Ranking Report (2023).

In India, the Ministry of Education, formerly the Ministry of Human Resource Development, of the Government of India, introduced the National Institutional Ranking Framework (NIRF), which produces the India Rankings, in 2015. The NIRF's objective is to offer a system for classifying HEIs throughout India. 2016 saw the publication of the first ranking scores (Ref: https://www.nirfindia.org/Parameter). Prior to the establishment of NIRF, the majority of earlier rankings and evaluations of Indian HEIs were completed by one person and had a narrow focus (Banshal, et al., 2017; Jeremic, and Jovanovic-Milenkovic, 2014). Many institutions, including private ones, are covered by NIRF. For several disciplines, it offers both general and discipline-specific rankings (Banshal, Solanki, and Singh, 2018). Five major parameters—teaching, learning and resources; research and professional practice; graduation outcomes; outreach and inclusivity; and perception— are used to determine the rankings (Banshal, Nishy et al., 2012; Singh, and Mayr, 2019). According to Kaur and Mahajan (2015) and Marisha, Banshal, and Singh, (2017), each parameter has an overall weight that is allocated to it and is further separated into sub-heads with proper weight distribution.

The University Grants Commission (UGC) founded the National Assessment and Accreditation Council (NAAC) in 1994, and it is tasked with evaluating and accrediting higher education institutions in India. Through the evaluation of institutions on a range of factors, including curriculum quality, teaching strategies, research projects, infrastructure, governance, and student services, NAAC seeks to ensure quality and promote improvements in academic standards. In order to systematize the needs for improving access, equity, quality, and success of higher education institutions in India, the National Assessment and Accreditation Council (NAAC) was established in 1994 as an autonomous body under the UGC Act. For the past 20 years, the NAAC has worked to improve higher education quality through certification and assessment (Ghatole & Dahikar, 2021; Prasad, 2006). It has updated its accreditation standards to include more ICT-enabled, scalable, transparent, resilient, and objective requirements. The self-study report is now organized using a matrix comprising both qualitative and quantitative data (Ghatole & Dahikar, 2021).

The National Institutional Ranking Frameworks (NIRF) and the National Assessment and Accreditation Council (NAAC) are the primary determinants of higher education institution quality in India.

The Study

This paper compares the research, innovation, and extension aspects of global ranking frameworks with Indian ranking and accreditation, including ARWU, QS, THE, NIRF, and NAAC accreditations. The authors critically examine the global ranking frameworks such as ARWU, QS, and THE with Indian ranking and accreditation frameworks, i.e. NIRF and NAAC in terms of Research, Innovation, and Extension.

Method

Document Analysis is used in the present study. The Framework of ARWU, Framework of QS World University Rankings, Framework of THE World University Rankings, Framework of NIRF, and Framework of NAAC accreditation were systematically analyzed using a structured Document Analysis framework.

Measures

The Document Analysis frame work consists of select indicators based on the three major areas of the study – Research, Innovation, and Extension.

Analysis

Thematic Analysis was carried out and major themes were identified, which were qualitatively explained.

II.   Results

Theme 1: Research

This theme focuses on assessing research output, faculty recognition, and academic influence. The weightage is distributed across various indicators of research excellence.

1. Academic Ranking of World Universities (ARWU)
- Faculty Quality (50%)
- Fields Medals and Nobel Prizes: 20%
- Highly Cited Researchers: 20%
- Research Output (40%)
- Indexed in Citation Databases (Science Citation Index-Expanded and Social Science Citation Index): 20%
- Papers in prestigious journals like Nature and Science: 20%

2. Times Higher Education (THE)
- Research: 30%
- Measures research output, income, and reputation.
- Citations: 30%
- Impact of university research based on citation influence.

3. Quacquarelli Symonds (QS)
- Citations per Faculty: 20%
- Assesses research productivity based on citation impact of faculty.
- 4. National Institutional Ranking Framework (NIRF)
- Research and Professional Practice (RP): 30%
- Considers research productivity, quality of publications, patents, and professional practice.

5. National Assessment and Accreditation Council (NAAC)
- Research, Innovation, and Extension: 25%
- Focuses on research output, innovative activities, and outreach.

Theme 2: Innovation

This theme looks at the novel approaches universities take in education, research practices, and institutional development.

1. Quacquarelli Symonds (QS)
- *Sustainability: 5%*
- *Highlights innovative sustainability practices in institutions.*

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2. Times Higher Education (THE)

- Research Innovation: Part of the overall Research (30%) and Citations (30%) components, since innovation often drives high-quality research and citation impact.

3. National Institutional Ranking Framework (NIRF)

- Research and Professional Practice (RP): 30%
- Includes innovation through research quality, intellectual property, patents, and their practical application.

4. National Assessment and Accreditation Council (NAAC)

- Research, Innovation, and Extension: 25%
- Also covers innovation in research practices and institutional outreach activities.

Theme 3: Extension

Extension activities relate to community engagement, international collaboration, inclusivity, and outreach efforts.

1. Quacquarelli Symonds (QS)

- International Research Network: 5%
- Measures global collaboration in research.
- International Faculty Ratio: 5%
- Reflects the percentage of international staff.
- International Student Ratio:5%
- Measures the proportion of international students, indicating global extension.

2. Times Higher Education (THE)

- International Outlook: 7.5%
- Measures international staff, students, and global research collaboration.

3. National Institutional Ranking Framework (NIRF)

- Outreach and Inclusivity (OI): 10%
- Includes diversity, gender inclusivity, support for economically and socially challenged students, and outreach to physically challenged students.

4. National Assessment and Accreditation Council (NAAC)

- Institutional Values and Best Practices: 10%
- Focuses on social responsibility, ethics, and commitment to institutional and community outreach practices.

Table 1 shows the summary of the weightage distributed in Research, Innovation and Eextension

Ranking System	Research %	Innovation %	Extension %
ARWU	Faculty quality (50%), Research Output (40%)= 90%	*N/A*	*N/A*
QS	Citations per Faculty (20%)	Sustainability (5%)	International Research Network, International Faculty, and Student ratio (15%)
THE	Research (30%), Citation (30%)= 60%	*Embedded in Research and Citation criteria*	International Outlook (7.5%)
NIRF	Research and professional Practices (30%)	Embedded in Research (30%)	Outreach and Inclusivity (10%)
NAAC	Research, Innovation, and Extension (25%)	Embedded in Research (25%)	Institutional Values and Best Practices (10%)

III.   Discussion

Rankings combine multiple metrics into a single total score. Numerous technical questions are raised by this, which can be addressed by learning about subjects like information theory, statistics, and decision theory. Several academics have stated that the measures' validity, reliability, and data comparability do not meet the requirements for adoption (Bowden, 2000; Florian, 2007; Van Dyke, 2005). When evaluating university performance, the ARWU, QS World University Rankings, and THE World University Rankings employ rather different methodologies.

The Shanghai Ranking group argues that widely available, internationally comparable data of measurable research performance is the only sufficiently reliable data to construct a ranking of the world's universities (Yat Wai Lo, 2014). Accordingly, the ARWU for 2023 prioritizes research output and innovation and does not claim to be a comprehensive university ranking. The "Research Output" category makes about 40% of the total score for the ARWU indicators, which are primarily concerned with research performance as

determined by looking at papers indexed in prestigious citation databases like the Science Citation Index-Expanded and the Social Science Citation Index (Bekhradnia, 2017; Huang, 2011). Publications that appear in prestigious journals like Science and Nature are also taken into account in this category which has opened the door for criticism (Anowar et al., 2015; Sorz, Fieder, Wallner, & Seidler, 2015). Faculty quality is determined by factors such as the amount of Nobel Prizes and Fields Medals given to faculty members (Ioannidis et al., 2007; Billaut et al., 2010), the recognition of widely cited researchers, and other indicators of research brilliance. Faculty quality makes up half of the ranking (Billaut et al., 2010). Altbach (2006b) suggests that the use of Nobel prizes under represents the social sciences, humanities and other highly diverse and expanding academic fields, which are fields in which Nobel prizes are not awarded (De Witte & Hudrlikova, 2013; Huang, 2011). Moreover, Huang (2011) concurs that the two indicators such as Nobel Prizes and Field medals are awarded only for extremely outstanding achievements and under represent the wider range of scholarly achievement. This thorough approach emphasizes how crucial cutting-edge research and international academic impact are to the ARWU methodology. The ARWU is the most consolidated of the popular university-based global rankings given there have been no changes to the core methodology of this ranking since 2010 (Rauhvargers, 2014).

Redden (2013) & Huang (2011) argue that the QS methodology is particularly controversial due in large part to its greater reliance on reputational surveys than other rankers. Research productivity and innovation are assessed in the QS World University Rankings 2024 mostly using the "Citations per Faculty" criterion, which makes up 20% of the total score. This metric emphasizes the significance of high-caliber and well-respected research papers by evaluating the effect of the faculty members' research. Furthermore, the "International Research Network" criterion—which accounts for 5% of the total—assesses the institutions' worldwide joint research initiatives. Anowar et al. (2015) suggests that internationalized performance factors should also be considered such as international collaboration between universities or scholars and this aspect has been incorporated into some of its regional rankings by QS with an indicator called 'international outlook' which looks at sustainable international research partnerships. This particular component highlights the importance of international collaborations and the worldwide scope of research endeavors within the QS technique.

Using a number of important indicators, the THE World University Rankings place a strong emphasis on research and innovation. Metrics of research volume, income, and reputation are included in the "Research" category, which accounts for 30% of the total score. These metrics show the scope and funding of research endeavors. The "Citations" category, which makes up 30% of the total (TES Global Ltd., 2015), evaluates the quantity of citations obtained, a reflection of the effect and caliber of the study that has been conducted. The significance of international research networks is further underscored by the inclusion of indicators on international research collaborations in the 7.5% "International Outlook" category.

Research, innovation, and extension are prioritized by the Indian NIRF through its "Research and Professional Practice (RP)" category, which makes up a sizable amount of the total rating. Metrics including the quantity of publications, the caliber of articles (determined by citation indices), published and awarded patents, and the impact of projects and professional activity are all included in this area. The RP category is intended to gauge the effectiveness and influence of research endeavors, in addition to the establishment's interaction with business and professional associations.

The "Research, Innovation, and Extension" criterion, which accounts for 25% of the total CGPA in the NAAC approach, is the most strongly weighted. This criterion evaluates the outreach initiatives, creative practices, and research output of the institution. It assesses things like research papers, grants, patents, and the institution's participation in community-beneficial extension initiatives. This thorough assessment makes sure that organizations are acknowledged for their contributions to research and their attempts to use results for the sake of society.

The difference between the ARWU, QS world university ranking, THE world university ranking's academic reputation surveys is that the THE's survey is restricted to a selected and invited group of published researchers whereas QS allows universities to nominate potential respondents (Holmes, 2017). When evaluating university performance, the ARWU, QS World University Rankings, and THE World University Rankings employ rather different methodologies. The QS survey enables universities to suggest possible respondents, but the Times Higher Education poll is restricted to certain and invited set of published scholars. This is the primary difference between the two organizations' studies of academic repute (Holmes, 2017). Simultaneously, the ARWU is determined using metrics related to publications and citations, as well as the number of faculty members and graduates who have received Field Awards and Nobel Prizes. There is no use whatsoever of reputational surveys (Redden, 2013). However, O'Malley (2016) notes that all three ranking methodologies employ citation databases to evaluate research or research effect. Both QS and THE currently collect citation information using Elsevier's Scopus database (Jobbins, 2014).

IV.   Conclusion

The various approaches taken by ARWU, QS, THE, NIRF, and NAAC to assess research, innovation, and extension are indicative of the complexity involved in achieving academic excellence. While QS and THE offer a more comprehensive perspective of research impact, they also take into account global research collaborations and research income. ARWU places more focus on citations and major awards, which highlight individual academic achievements. NIRF and NAAC offer a thorough evaluation that considers contributions from both academia and society, with an emphasis on research productivity, innovation, and community engagement.

Every ranking system offers a distinct viewpoint and addresses various facets of innovation and research. Institutions striving for top rankings need to strike a balance between community outreach, practical applications, worldwide cooperation, and prominent research output. This all-encompassing strategy guarantees that universities not only achieve academic excellence but also make a major contribution to the advancement of world knowledge and society.

To summarise, whilst ARWU, QS, and THE offer insightful information about faculty excellence and the effect of research globally, NIRF and NAAC, especially for Indian institutions, provide a more thorough and culturally appropriate assessment of research, innovation and extension activities. A shared comprehension of these approaches can help organizations improve their research plans, encourage creativity, and reach overall excellence.

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