INTERNATIONAL RANKING SYSTEMS AND THEIR RELEVANCE FOR THE RESEARCH PERFORMANCE ASSESSMENT OF UNIVERSITIES: A CASE STUDY OF UNIVERSITY OF JAFFNA

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Abstract

This study aimed to explain the relevance of international ranking systems in assessing the research performance of universities. Research publication details of University of Jaffna were retrieved from the annual reports, Scopus database and Web of Science database from the year 2020 to 2022. Furthermore, the research delves into popular international ranking systems and their indicators and weightage, that impact the research ranking of an academic institution. The University of Jaffna published more journal articles (252) and conference articles (601) in 2021 than in other years considered for this study. According to the annual report, University of Jaffna published 29.31% of journal articles during the three years among the total publications. In 2020, 43.38% of the journal articles were published in Scopus followed by 40.47% in 2021 and 48.77% in 2022. Since, THE world university ranking, QS ranking and SCImago ranking rely on Scopus database, these ranking systems considered only 43.38%, 40.47% and 48.77% of research publications during 2020, 2021 and 2022 respectively to measure the University of Jaffna research-related indicators. URAP ranking considered 28.57%, 27.38% and 29.09% of the total University of Jaffna publications for the ranking. Webometric considered the Google profile details of the research publications, which include only the institutional email ID profile research publications. Nearly 59.13% of the staff have their Google profiles under institutional profile, which contribute to webometric ranking. This study revealed that less than 50% of the research output was considered by the popular international ranking systems to measure the research-related indicators of University of Jaffna. It is because of data sources used by the ranking systems. Further, this study explained that, the popular ranking systems failed to use holistic approach to measure the research performance of the University of Jaffna and discussed the shortcoming in methodology follow and transparency. Ranking numbers of higher education institutes may have impact on policy making and the policy makers should consider the shortcoming when these were used as information source. Also, it recommended that, a national level ranking can be developed to measure the performance of higher education institutes by considering specific needs and objectives of the higher education institutes rather than relying solely on the international ranking systems.

Keywords: *International ranking systems, Research performance, University of Jaffna, Higher education institutions.*

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Introduction

Higher Education Institutions (HEIs) play a significant role in society through raising awareness, knowledge creation, skill development and research development. University Grants Commission (UGC) of Sri Lanka is the prime body of the university system in Sri Lanka and is involved in planning and coordinating university education, fund allocation to HEIs, maintaining academic standards and regulating administration and student admission. There are seventeen universities, nineteen institutes, two campuses and six universities under different ministries managed by UGC. In developing countries, the broader economic and social objectives are expected to be achieved through the higher education systems (Fernando et al., 2018). HEIs in Sri Lanka face many challenges in conducting research (University Grants Commission, 2014). The research capacity of a country can be measured through the percentage of Gross Domestic Product (GDP) spent on research, number of researchers, number of publications in refereed journals and number of patents (The World Bank, 2022). Accordingly, Sri Lanka allocated 0.13% of its Gross Domestic Product for research in 2018 whereas the world average is 2.2 percentage (The World Bank, 2022). Sri Lanka focused research in six disciplines, such as: natural science, engineering and technology, medical science, agricultural science, social sciences and humanities and other sectors (Fernando et al., 2018).

There are many international ranking systems developed by various organizations to measure the performance of higher education institutions (Nassa et al., 2023). International ranking systems have a significant impact on the reputation and prestige of an institution, student selection, research performance and collaboration, funding and investment, policy and institutional development etc. Around seventeen international university ranking systems have been developed by multiple institutions, policymakers, governmental organizations, news media etc. (Nguyen & LeBlanc, 2001).

Number of studies have discussed about the merits and demerits of different ranking systems, among them few are reviewed for this study. Wijetunge (2021) discussed about the research productivity of Sri Lankan universities. The study found that the research productivity, impact and collaboration are the major aspects considered by the ranking systems and few Sri Lankan universities are ranked in the international systems. Harvey (2008) critically reviewed, ranking of higher education institutions can be done using composite index, rather than using a set of indicators that are combine into a single index. Most of ranking systems were largely based on what can be measured rather than what is relevant and important (Harvey, 2008). Regarding the determinants of quality national

higher education system, Pietrucha (2018) pointed out all universities in a given country should share common characteristics that determine their position in the rankings and revealed one of the key factors determining the standing of a university in the World University Rankings is the size of the country's economy. Further, it can be interpreted that GDP reflects the economic potential of a country, which easily translates into the funding necessary for securing academic excellence of universities. Further, a relationship exists among per student expenditure in tertiary education and the overall Academic Ranking World Universities Score per million habitant; it is understandable that, higher funding in higher education exhibit higher excellence in university system (Michavila & Martinez, 2018).

The following five ranking systems are popular among Sri Lankan Universities (Wijetunge, 2021) which are the Times Higher Education (THE) ranking, Quacquerelli Symonds (QS) ranking, SCImago Institutions (SCI) ranking, University Ranking by Academic Performance (URAP) and Webometric ranking (Wijetunge, 2021). Different ranking systems uses different methodologies and criteria to assess university performance. The ranking position on a university may vary depending on the specific focus and weightage assigned for indicators used. It is recommended to use multiple rankings to gain a comprehensive understanding about the university performance (Abramo & D'Angelo, 2015).

Research performance of the university plays a major role in the international ranking. The quality of the research performed, impact, number of publication in prestigious journals will enhance the visibility and recognition of the university (Abramo & D'Angelo, 2014). Most of the ranking systems allocated more weightage for the research performance, THE World ranking allocated 30%, QS -20%, URAP -100%, SCImago – 50% and Webometric - 50% (Dugerdil et al., 2022). Different ranking systems rely on different data sources to assess and compare the performance particularly for scholarly data. THE World ranking, QS and SCImago collect research data from Scopus database, URAP collect from Web of Science and the Webometric ranking collect from Google Scholar (Benito et al., 2020). It shows that, different ranking systems use different indicators and data sources to measure the research performance of an institution. This study aimed to answer the three research questions,

1. What are the major research indicators used by the popular ranking systems?
2. What are the data sources used by the ranking systems to gather research data?
3. Can international ranking systems assess the complete research performance of the University of Jaffna?

Methodology

Answer to the research questions, the study focused on five major international ranking systems namely, Times Higher Education World University Ranking, University Ranking by Academic Performance Quacquarelli Symonds World University Ranking, SCImago institutional ranking and Webometric ranking. These ranking were selected due to their popularity among the Sri Lankan universities (Wijetunge, 2021). Complete ranking methodologies and data were retrieved from the official websites of respective ranking systems for the year of 2020, 2021 and 2022. University of Jaffna annual reports were used to collect data on the university publication details for 2022, 2021 and 2022 under different types of documents (University of Jaffn, 2021-2022). Scopus and Web of Science indexed publications were retrieved from Scopus and Web of Science databases during the study period and university name as "address." Collected data were analyzed using MS Excel to compare the difference between the annual report and database.

Results

Main research indicators used by five university ranking systems are depicted in Table 1. University Ranking by Academic Performance - developed by Informatics Institute of the Middle East Technical University, Turkey in 2010 - assigned 100% of the total score for the research performance. Times Higher Education World Ranking - developed by Times Education Institution during 2004 - assigned 62.5% of the total for research while SCImago assigned 50%, Webometric assigned 50% and QS assigned 20% for the research performance assessment. Scopus database used by the THE, QS and SCImago to retrieve research data and URAP used Web of Science. Webometric ranking uses Google Scholar to collect transparency and excellence related data. SCImago defined a benchmark for an institution become eligible for SCImago ranking. At least 100 works should be included in the Scopus database during the last year of the selected time period and citable documents must represent at least 75% of total documents published by the institution.

Table 1: Main Research Indicators Used by the University Ranking Systems

Ranking System	Major Indicators	KPI	%	Data Sources
Times Higher Education World University Ranking (THE)	Research (Volume, income and reputation) 30%	Reputation survey, Research income Research productivity	18% 6% 6%	Scopus database
	Citation (Research influence) 30%		30%	
	International Outlook (staff, student and research) 7.5%	Proportion of international students Proportion of international staff International collaboration	2.5% 2.5% 2.5%	
QS Ranking	Citation per faculty	An indication of research impact	20%	Scopus database
University Ranking by Academic Performance (2022-2023 ranking indicators)	Current Scientific Productivity (2021)	Articles published in 1st, 2nd, and 3rd quartiles (JIF) journals	21%	Incites
	Citation (2017-202)	Research impact Number of citation received in 2017-2021 for the documents published in 2017-2021.	21%	Incites
	Total document (2017-2021)	Measure of sustainability and continuity of scientific productivity. Including conference papers, reviews, letters, discussions, scripts and journal articles	10%	Incites
	Article impact total	Research quality corrected by the institution's normalized.	18%	Incites
	Citation Impact Total (2017-2021)	Research quality corrected by the institution's normalized.	15%	Incites
	International collaboration (2017-2021)	Number of articles published in collaboration with foreign universities.	15%	Incites
SCImago Institutions Ranking	Research (50%)	Normalized impact (NI)	13%	Scopus database
		Excellence with leadership (EwL)	8%	
		Output (O)	8%	
		Scientific leadership (L)	5%	
		Not own journals (Not OJ)	3%	
		Own journals (OJ)	3%	
		Excellence (Exc)	2%	
		High quality publications (Q1)	2%	
		International collaboration (IC)	2%	
		Open access (OA)	2%	
		Scientific talent pool (STP)		

Ranking System	Major Indicators	KPI	%	Data Sources
Webometric Rankings	Transparency or Openness	Top cited researchers (Number of citations from top 310 authors)	10%	Google scholar profiles
	Excellence or Scholar	Top cited papers(Number of papers amongst the top 10% most cited papers in 27 disciplines)	40%	SCImago database

Source: Times Higher Education World University Rankings (2022); Quacquerelli Symonds World University Ranking (2022); University Ranking by Academic Performance (2022); SCImago Institutional Rankings (2022) and Ranking Web of Universities (2022).

Table 2 presents the number of journal articles, conference articles and books and book chapters published during the period 2020-2022 by University of Jaffna. A higher number of journal articles (252) and conference articles (601) were published in 2021 than in the other two years. There are eleven academic entities publishing their scholarly publications every year related to different disciplines such as, agriculture, engineering, medical science, pure science, applied sciences, social sciences, arts and humanities. More journal articles were published by the Faculty of Science, accounting for 27.53% of the total publications over the three-year period, along with conference articles at 27.17%. The year 2022 saw a high number of books published, with a total of 62. Given the universities' emphasis on encouraging researchers to focus on journal publications, the University of Jaffna contributed 29.31% of the total journal articles published during the three-year period.

Table 2: Publications by University of Jaffna Researchers

Faculties	Journal Articles			Conference Articles			Books Published		
	2020	2021	2022	2020	2021	2022	2020	2021	2022
Agriculture	17	15	12	58	65	69	2	1	8
AHS	1	9	9	23	43	29	0	1	1
Arts	0	15	40	0	70	114	-	21	9
Engineering	9	9	33	64	43	25	0	8	7
Hindu studies	5	9	9	20	17	40	7	8	17
Mgt. Studies & Commerce	44	21	31	59	53	38	8	2	4
Medicine	16	79	25	15	101	58	11	4	7
Science	64	65	61	94	120	107	3	3	4
Technology	25	24	21	35	61	15	0	0	1
Library	5	2	2	6	5	6	1	2	1
Unit of Sidha Medicine	3	4	6	11	23	29	3	1	3
TOTAL	**189**	**252**	**249**	**385**	**601**	**530**	**35**	**51**	**62**

Source: University of Jaffna (2020-2022)

Table 3 explains the number of journal articles and the conference articles published in Web of Science (WOS) and Scopus indexed journal during the respective years.

Table 3: Indexed Publications by the University of Jaffna Researchers

Year	Journal Articles	Conference Articles	WOS		Scopus	
			Journal Articles	Conference Articles	Journal Articles	Conference Articles
2020	189	358	54	1	82	18
2021	252	601	69	0	102	31
2022	244	530	71	2	119	24

Source: University of Jaffna (2020-2022), Scopus (2022), Web of Science (2022).

The University Grants Commission of Sri Lanka recommends Scopus and Web of Science (WOS) indexed journals for scholarly publications, giving them more weightage in academic promotions. These two databases are also widely used by various ranking systems as their primary sources of data to measure the research performance of higher education institutions. Number of journal articles published in the two databases were increased with the year. THE higher education ranking assign nearly 67.5% of the total score for research performance and Scopus as data source. According to THE methodology institutional research ranking depends on the number of publications in Scopus database with the institutional name as the author affiliation. University of Jaffna is a multidisciplinary university comprising ten academic disciplines. There are some practical difficulties in universities to collect the full research publication details for annual reports. Table 3 shows that, 43.38% of the total journal articles were published in Scopus indexed journals during 2020. It shows THE higher education ranking consider only 43.38% of journal articles during 2020 to measure its research performance. Since QS ranking and SCImago ranking also use the Scopus database as research data source, those will consider around 40.47% in 2021 and 48.77% in 2022 to measure research performance of University of Jaffna.

URAP ranking uses WOS as a data source for research performance measurement and it assign 100% weightage for the research. Table 3 shows that, 28.57%, 27.38% and 29.09% of the total UoJ publications were published in WOS indexed journals during 2020, 2021 and 2022 respectively.

Webometric rankings consider the research publications in Google Scholar profiles. Google Scholar have number of demerits to consider as the scholarly database (Jacsó, 2005). There are 531 permanent academic staff attached to university of Jaffna during 2022 (Jaffna, 2022) while 314 academics have created their Google Scholar profiles. As a result, 59.13% of staff profiles were contributed for the webometric research performance. Despite demerits, Google Scholar remains a valuable tool for discovering scholarly content and monitoring citation metrics. It can complement other academic databases and profiles but researchers should be cautious in solely relying on it for comprehensive research evaluation.

Discussion

There are seventeen universities established under University Grant Commission of Sri Lanka. Measuring the university performance is very important for its stakeholders such as, students, academics, researchers and administrators of the universities, policy makers and funding agencies. Several ranking systems developed their different performance metrics and indicators to measure the performance with respect to teaching, research quality and impact, reputation, innovation, societal impact etc. These ranking systems uses different data sources to measure the indicators developed.

It is difficult for HEIs in developing countries to compete with developed nations, especially with their research infrastructure, ever evolving academic curriculums and research publications. Most of the university ranking systems in world have put nearly 50% weightage for institutional research portfolios. Research portfolios of a HEIs could be measured by Research Excellence Framework (REF) which includes the number of publications in indexed databases, number of citations, number of highly cited publication etc. The main problem with existing university ranking systems is not following the holistic approach relevant to the ranking indicators, it varies among different ranking systems. These indicators are highly competitive for HEIs in Sri Lanka. Sri Lankan higher education institutions are also adopting sound academic, teaching, administrative and research practices recommended by the Quality Assurance Council of Sri Lanka. Different ranking system adopt with different data sources to collect research data and the university publications in Scopus, Web of Science and Google Scholar have different numbers. It shows that, ranking systems measures the part of the research publications to measure the research related indicators. Number of publications in Scopus and Web of Science indexed journals are differs according to the subject specialty of the university, i.e. Scopus has more extensive coverage of Social Science and Humanities, while Web of Science offers greater coverage for subjects based on

Pure Sciences (Pranckute, 2021). University researchers may choose to publish their research outcomes in authentic local journals with a quality output, even though these choices may not be taken into consideration by international ranking systems. Most of the ranking system's methodologies were not transparent and not follow holistic approach to measure indicators. SCImago defined criteria for HEIs to eligible for ranking and these benchmarks restrict all the HEIs to get ranked by SCImago.

Conclusion

University of Jaffna was positioned at 7th place for SCImago research ranking, 8th place for Webometrics, 4th place for QS regional ranking and not included in THE world ranking and URAP among Sri Lankan universities for 2022. University of Jaffna published 68.72% of the total publication as conference articles, which is also carry an important research output and not considered for the popular ranking between 2020 and 2022. It possess a significant challenge for developing country researchers to publish their manuscript in the international indexed journals, because of cost for the publication, regional level research output, research infrastructure, equipment facilities etc. This study stated that, nearly less than 50% of the research output was considered by the popular international ranking systems to measure the research performance of University of Jaffna because of different data sources used by different ranking systems. Nearly 50% of the research output was not contributed for the University of Jaffna ranking and may have strong research impact for the society. Applicability of international ranking system for Sri Lankan universities may have some limitations and considerations such as, focus on teaching quality, regional difference, data availability, resource constraints, economic conditions and educational priorities. In addition, it has been identified there are challenges associated methodology, shortcomings with identified indicators, divergence in the methodologies of different ranking systems and lack of transparency of methodologies have impact on the ranking of HEIs (Qureshi & Daud.A, 2021). Result of the ranking system may become policy guides for universities or have impact on fund allocation, infrastructure development, student selection etc. Policy makers should consider the merits and demerits of international ranking systems when they use these as an information source for policy making. Finally, this study recommended that, national level ranking can be developed to measure the real performance by considering specific needs and objectives of the HEIs rather than rely on the international ranking systems.

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