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Book Publication Index as a World University Rank Indicator

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ABSTRACT

University ranking has indeed become a trend in the world. There are two things behind the growing interest in the use of ranking in the world of higher education they are as a form of accountability and as university strategy to achieve other goals such as prestige, funds, students and also good well known lecturers. This paper proposes Book Publication Index (BPI) as a World University Rank Indicator. In the study, twenty five universities around the world have been taken as case study. The results show that academic staffs of top universities in ASIA and Australia have less interested in writing books. Conversely, academic staffs of top universities in the United States and the United Kingdom have highly an interest in writing books in addition to scientific work. Similarly, Universities in Indonesia focus on publishing books to support their academics.

KEY WORDS: *Book Publication Index, World University Rank Indicator, ASIA.*

NOMENCLATURE

CWUR	Center of World University Ranking
MIT	Massachusetts Institute of Technology

1.0 INTRODUCTION

University ranking has indeed become a trend in the world. Most universities in the world are ambitious to pursue the world rankings. In Indonesia, Malaysia for example, the government policy enforced to use world university rankings as the official reference of university rankings of the world and encourage universities to get involved. The governments also provide assistance both material and non-material to some universities that have the potential to rank well.

There are two things behind the growing interest in the use of ranking in the world of higher education. First is ranking as a form of accountability. Both the government and the community as supporters and users of higher education would want to know the quality of universities. Ranking is considered an effective way to meet these demands. Ranking can be a government reference in policy making especially in the determination of programs and the allocation of funds for higher education. Also, it can be used by the community to determine the best college choice for their children.

Second is rank as magnet which is widely used as university strategy to achieve other goals such as prestige, funds, students and also good well known lecturers. As education needs continue to increase, competition between universities cannot be inevitable. Colleges are constantly making every effort to be the best. Ranking becomes an effective and efficient system alternative to meet this need.

By getting the legitimacy of its position as the best, a college will gain greater trust from the government, the private sector, as well as the community. This certainly has an impact on the increased cooperation with the government and the private sector that will increase the college coffers. In addition, more and more students and lecturers are interested to enter. As a result, these colleges have a greater chance to get the best students and lecturers.

Universities and governments such as Malaysia, Singapore, Indonesia, and others are increasingly using rankings to improve their status, attracting foreign students, professors and investment, and in many cases, setting policies designed to improve their rankings. While ratings are meant to measure quality, for all intents and purposes, most of them capture institutional wealth,

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wealth accumulated over time or declared as socio-economic wealth.

The university rankings basically are rankings of institutions in higher education which have been ranked on the basis of various combinations of various factors such as academic reputation, output of research, alumni employment, publication, and others [1].

In order to raise the point of one indicator, some universities made reshuffling and restructuring of organizational such as the dramatic merging of the faculties in a very short time, thereby spending a lot of money and effort. Reshuffling, restructuring and merging have an impact on work, sensitivity and confusion to academic staff. The reshuffling, restructuring and merging can have a profoundly negative impact on the students, faculty, and staff of the educational institutions brought together by restructuring. The potentially negative impact that poorly structured mergers can have on individuals and organizational culture can jeopardize the success of the merger [2].

Use of ranking in the world of higher education is not without problems. This issue has generated much debate about usability and ranking accuracy [3]. In determining the ranking of universities, the rankings are based on the level of popularity of the world's universities on the site. There is no direct indicator about the quality of education. So rather than objectively assessing the quality of an institution, the university ranking tends to be a more subjective race of popularity.

The university ranking also often focuses only on factors such as external funding revenues, number of publications, the proportion of lecturers with doctoral or professor qualifications, and the quality of students. Unfortunately, these factors do not necessarily indicate the quality of a university. For example, the number of publications is not necessarily in harmony with the quality or usefulness of the article.

Koto et.al (2018) discussed the inconsistencies and doubtful of world university rankings [4]. In their study, input data was collected from 2018 world rankings published by QS and CWUR. It was founded that there are three ranking gap regions: low ranking gap for universities in North America (USA) and Europe (UK), medium for universities in the East Asia such as Japan and Korea and high gap values for universities in developing countries such as ASEAN.

The wisdom of seeing and using ranking to see the quality of institutions and higher education is a must [5]. Governments, universities, and the public can still use the ranking as a reference. However, it must be critical to ensure that the ranking is transparent and accountable on the criteria it uses. In order to review the universities raking issue, a study on universities ranking has been conducted by taken Book Published Index as parameter. Results of study are compared with the QS and CWUR rankings. There were 25 universities from seven countries as follows: USA, UK, Japan, South Korea, Singapore, Malaysia and Indonesia to be considered in this study. For each university, we take the ranking difference between QS and CWUR rankings and put it as the gap.

2.0 UNIVERSITIES RANKING METHODOLOGY

The university rankings began in 2004 and were based on a combination of indicators that takes into account both the volume and content of the Web, the visibility and impact of web publishing in accordance with the number of external links received. Various rankings consider combinations of measures of funding and endowment, research excellence and/or influence, specialization expertise, admissions, student options, award numbers, internationalization, graduate employment, industrial linkage, historical reputation and other criteria. Various rankings mostly are evaluating on institutional output by research. Some rankings evaluate institutions within a single country, while others assess institutions worldwide. There are several university ranking systems at present, Centre of World University Ranking (CWUR), Webometrics, QS, Times Higher Education and 4ICU.

2.1 Center for World University Rankings

The CWUR has been doing university rankings in the world since 2012. The Center for World University Rankings (CWUR) publishes the only global university ranking that measures the quality of education and training of students as well as the prestige of the faculty members and the quality of their research without relying on surveys and university data submissions [6, 7]. CWUR uses seven objective and robust indicators to rank the world's top 1000 universities:

1. Quality of Education, measured by the number of a university's alumni who have won major international awards, prizes, and medals relative to the university's size (15%)
2. Alumni Employment, measured by the number of a university's alumni who have held CEO positions at the world's top companies relative to the university's size (15%)
3. Quality of Faculty, measured by the number of academics who have won major international awards, prizes, and medals (15%)
4. Research Output, measured by the the total number of research papers (15%)
5. Quality Publications, measured by the number of research papers appearing in top-tier journals (15%)
6. Influence, measured by the number of research papers appearing in highly-influential journals (15%)
7. Citations, measured by the number of highly-cited research papers (10%)

2.2 Webometrics

The Webometrics Ranking of World Universities" is an initiative of the Cybermetrics Lab, a research group belonging to the Consejo Superior de Investigaciones Científicas (CSIC), the largest public research body in Spain [8]. The original aim of the Ranking is to promote academic web presence, supporting the Open Access initiatives for increasing significantly the transfer of scientific and cultural knowledge generated by the universities to the whole Society. The Webometrics are based its ranking on four indicators, namely

1. Impact
2. Presence
3. Openness
4. Excellence

These four factors are rated from the academic sites of each university [8]. These four indicators are used by Webometrics as a representative for an in-depth evaluation of the university's performance in the eyes of the community by considering its

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activities, results, relevance, and impact.

Through the first indicator (*impact*) has weighing 50 percent. The Webometrics calculates how many external links are received from third parties. Many links will make a university recognized with regard to institutional prestige, academic performance, information value, and usability levels of the site services provided.

The last three indicators (*presence*, *openness*, and *excellence*) have weighting 50 percent with equivalent allocation. The *presence* indicator is used to calculate the number of university web pages indexed by search engines, Google. The *openness* indicator shows the published research data volume in rich files format, such as *pdf*, *doc*, *docx*, and *ppt* on the site, according to Google Scholar search engine. Meanwhile, the last indicator (*excellence*) is used to calculate the number of academic works successfully published in international journals, such as those listed in Scimago Lab. This indicator is considered able to show the quality of research from the college.

All indicators are claimed not to evaluate design issues, usability, or number of clicks on their academic sites. These four indicators are used by Webometrics as a representative for an in-depth evaluation of the university's performance in the eyes of the community by considering its activities, results, relevance, and impact.

2.3 4ICU

4 International Colleges & Universities (4ICU) is a search engine and directory that assesses the popularity of sites owned by 11,307 colleges worldwide that have been accredited and spread over 200 countries [9]. The 4ICU based its rating based on mapping conducted by five ranking sites, namely Google Page Rank, Alexa Traffic Rank, Majestic Seo Citation Flow, Majestic Seo Citation Flow, and Majestic Seo Trust Flow [10]. These five sites also do ranking based on various technical indicators of the site or blog. 4ICU lists colleges with popular sites. That is, colleges are considered popular because the site is indexed in search engines and easily searchable.

The benefits, in addition to upholding information disclosure to the public, Webometrics and 4ICU ratings show colleges that are diligent in publishing scientific work of lecturers and researchers. College leaders are encouraged to apply professional website management with due regard to the quality and quantity of their publications. Another important thing is the civitas academic colleges are encouraged to be productive in research.

The disadvantage is that these rankings are vulnerable to make-up by a number of colleges for their site to be seen as qualified. If you want to cheat, then a number of technical steps can be done to boost the college ranking.

2.4 QS

QS World University Rankings is an annual publication of university rankings conducted by Quacquarelli Symonds (QS) [11]. QS World University Rankings was formerly known as THE-QS World University Rankings, in collaboration with Times Higher Education (THE) magazine to publish an international league table from 2004-2009 before the two of them began announcing their own version..

The QS World University Ranking publishes the annual ranking of world universities by measuring the following parameters.

1. Academic Reputation
2. Employer Reputation
3. Faculty Student
4. Citations per Faculty
5. International Faculty
6. International Students

The undue allocation of loads for subjective indicators and having highly fluctuating results is a major criticism of this ranking [11]. Several individual indicators from the Times Higher Education Survey (THES) data base the overall score, the reported staff-to-student ratio, and the peer ratings demonstrate unacceptably high fluctuation from year to year [12]. This instability can only strengthen the existing critique of the overall ranking system by earlier evaluators, such as van Raan (2005) [13], who highlighted the invalidity of yet another component of these totals, the bibliometric component (the citation-based scores)

At this time, the QS ranking has become a benchmark for universities in every country. The Ministry of Civilization of every country in ASEAN has spent a lot of money to pursue the ranking. During this time, the ranking of QS World University Ranking is also used by Ministry of Research, Technology and Higher Education of the Republic of Indonesia as one of the benchmarks of universities in Indonesia to a world-class university.

3.0 BOOK PUBLICATION INDEX

In this study, the performance of a university is measured based on the Book Publication Index (BPI). The Book Publication Index (BPI) is determined using the following equation:

$$BPI = \frac{BP}{NR} \quad (1)$$

Where; BP is book published by university based on ISBN and NR is number of researchers.

3.1 Data Collection

In order to verify the accuracy of the data, the published book by universities ware taken from ISBN databases as shown in Figure 1 and catalog book published by universities as shown in Figure 2.

Figure 1: An example of book searching from ISBN database

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Figure 2: Book Catalogs of Universiti Malaya, Universiti Teknologi Malaysia and National University of Singapore

4.0 RESULTS OF STUDY

Table 2 shows Book publication Index for selected top, medium and low universities rankings in the world. According to the table, All academic staff at Cambridge University wrote books as indicated by BPI greater than 1 then followed by Ocean and Aerospace Research Institute, Indonesia with BPI 0.875. The Massachusetts Institute of Technology as a QS 1 rank has a BPI of 0.236.

There is a trend that academic staffs of top universities in ASIA such as National University of Singapore, Universiti Malay, Universiti Teknologi Malaysia and University of Hong Kong and in Australia such as University of Melbourne have less interested in writing books which is less than 2.5 percent. There may prefer to write scientific papers rather than books. Conversely, academic staffs of top universities in the United States and the UK have highly an interest in writing books in addition to scientific work. Similarly, Universities in Indonesia such as Bandung Institute of Technology, Riau University and Sepuluh Nopember Institute of Technology focus on publishing books to support their academics.

5.0 CONCLUSION

In conclusion, Book Publication Index of universities as world university rank indicator has been discussed. The results show that academic staffs of top universities in ASIA such as National University of Singapore, Universiti Malay, Universiti Teknologi Malaysia and University of Hong Kong and in Australia such as University of Melbourne have less interested in writing books. Conversely, academic staffs of top universities in the United States and the UK have highly an interest in writing books in addition to scientific work. Similarly, Universities in Indonesia such as Bandung Institute of Technology, Riau University and Sepuluh Nopember Institute of Technology focus on publishing books to support their academics.

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Table 2: Book Publication Index (BPI) in 2017 – 2018 [14 & 15]

No	Universities /Research Institutes		BPI	CQS	CWUR	Flags
1	University of Cambridge	1209	>1	5	4	UK
2	Ocean and Aerospace Research Institute	2013	0.875	-	-	Indonesia
3	Institut Teknologi Bandung	1959	0.256	331	>1000	Indonesia
4	Massachusetts Institute of Technology	1920	0.236	1	3	USA
5	The Australian National University	1946	0.176	20	82	Australia
6	Universitas Riau	1962	0.115	-	>1000	Indonesia
7	Institut Teknologi Sepuluh Nopember	1957	0.092	801-1000	>1000	Indonesia
8	Universitas Diponegoro	1956	0.071	801-1000	>1000	Indonesia
9	Duke University	1838	0.067	25	24	USA
10	Harvard University	1780	0.066	3	1	USA
11	Stanford University	1891	0.063	2	2	USA
12	Universitas Indonesia	1954	0.062	277	>1000	Indonesia
14	University of Melbourne	1853	0.039	41	57	Australia
15	Universitas Gadjah Mada	1959	0.038	401-410	>1000	Indonesia
16	University of Toronto	1827	0.030	31	17	Canada
17	McGill University	1821	0.032	32	37	Canada
18	Badan Pengkajian dan Penerapan Teknologi	1974	0.028	-	>1000	Indonesia
19	The University of Hong Kong	1911	0.023	26	171	Hongkong
20	Universiti Malaya	1949	0.021	114	451	Malaysia
21	Universitas Andalas	1956	0.017	-	>1000	Indonesia
22	National University of Singapore	1962	0.015	15	103	Singapore
23	Universiti Teknologi Malaysia	1975	0.014	253	>1000	Malaysia
24	Peking University	1898	0.010	38	92	China
25	Seoul National University	1946	-	36	60	South Korea

Sources: ISBN Database & Catalogue

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