Web Impact Factor for Malaysian Public Universities

Abdul Arif and N. A. Ismail

***Abstract*—This paper evaluates Public Universities in Malaysia based on the webometric perspective. Web Impact Factor (WIF) evaluation was carried out by using Majestic SEO and Google Search engine. It is found that UMS have the highest Average WIF with 13.013 followed by UMK with 2.670 WIF and in the third place is UPNM with 1.289 WIF.**

***Index Terms*—Malaysian public universities, web impact factor, webometrics.**

I. Introduction

There are two types of university in Malaysia, namely public university and private university. All public universities have their personal websites that are normally used to spread intended information to the general community. However, not much research has been done on the quality of the websites. Since these websites are the primary information sources in this technological era, related research is important to identify its influence and quality. Thus, this research has been conducted to evaluate the Web Impact Factor (WIF) of the websites of public universities in Malaysia.

All of the public universities in have their own websites and on average, most of the websites have more than 10,000 pages. To manually evaluate the quality and performance of these websites thus become a tedious task and to overcome this problem, Peter Ingwersen proposed the Web Impact Factor (WIF) [1]. WIF adapts the principal concept of the Journal Impact Factor which is widely used to evaluate the performance of journals. WIF for a website, on the other hand, intends to evaluate the performance of the website using In-link Count and Page Count. The formula for calculating WIF was further improved in 2001 where Peter Ingwersen changed the In-link Count to External In-link Count [2].

II. Literature Review

Many researchers had done studies in the webometrics field [3]-[7]. For example, Vaughan did a study on business websites [7]. Noruzi (2006) also performed a study using the WIF [5]. Farzaneh Aminpour did a webometrics analysis on medical science universities in year 2009 [8]. In addition, Samir Kumar Jalal carried out a study also using WIF on some Indian universities [9]. Recently, in 2011, Handaru Jati had done similar study on Indonesian universities [10]. At the same time, Md. Anwarul Islam did the same on Bangladeshi universities [11].

Such research may seem easy, but it is crucial for the general public and concerned parties like the Ministry of Higher Education (MOHE) to evaluate the standard of a university's website. By dividing the In-link Count with the Page Count, the WIF can be obtained. The formula adjustment carried out in year 2001 had further enhanced the accuracy of the WIF obtained thereafter.

Yahoo Site Explorer had been the major tool to calculate the External In-link Count for most webometrics research [4]. However, in year 2011, Yahoo had decided to terminate the related services due to the merging of Yahoo and Microsoft [12]. There are various reactions towards this decision; most of the users are not happy as the Yahoo Site Explorer has been the most preferred service for calculating External In-link Count [13]. In fact, it has been used even by business companies to evaluate the selling points, popularity and credibility of competitors. The termination of such important service means that the users will need to find other resources and this has helped the Majestic SEO to surge into popularity.

III. Method

This study collected the required data using the Google Search Engine and the Majestic SEO. The data were collected within the same month – July 2012. To obtain the Page Count for a certain website, the two search engines were utilized simultaneously. In Google, the keyword "site:domain. Top Level Domain" was used to get the Page Count while in Majestic SEO; the Page Count was taken from the "Indexed URL" parameter. Since the Majestic SEO has two options for data collection, the "Fresh Index" was chosen for this study to ensure that all data collected were the latest data at that time.

To obtain the External In-link Count, Google could not be used because it does not provide any related service. Therefore, Majestic SEO became the major service. In this case, the "External Backlink" parameter from the "Fresh Index" data was taken as the External In-link Count. After the collection of these two data (Page Count and External In-link Count), the WIF was calculated. This can be done using the formula in (1).

$$WIF = \frac{External \quad In - link \quad count}{Page \quad count} \tag{1}$$

As this study was focused on the public universities in

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Abdul Arif is a researcher in Faculty of Computer Science & Information System. Graduated in the Mecahnical Engineering field, he is now pursuing Master of Computer Science in Universiti Teknologi Malaysia, Johor, Malaysia (e-mail: misterpah@gmail.com).

N. A. Ismail is currently the Deputy Director of Corporate Affairs (Web Director) and a senior lecturer in Universiti Teknologi Malaysia (e-mail: azman@utm.my).

Malaysia, all public universities registered and recognized by MOHE as of July 2012 were identified. The 20 qualified public universities were listed in (I).

TABLE I: LIST OF PUBLIC UNIVERSITIES IN MALAYSIA

University	Url
Universiti Malaya (UM)	um.edu.my
Universiti Sains Malaysia (USM)	usm.my
Universiti Kebangsaan Malaysia (UKM)	ukm.my
Universiti Putra Malaysia (UPM)	upm.edu.my
Universiti Teknologi Malaysia (UTM)	utm.my
Universiti Teknologi MARA (UiTM)	uitm.edu.my
Universiti Islam Antarabangsa Malaysia (UIA)	iium.edu.my
Universiti Malaysia Sabah (UMS)	ums.edu.my
Universiti Malaysia Sarawak (UNIMAS)	unimas.my
Universiti Utara Malaysia (UUM)	uum.edu.my
Universiti Pendidikan Sultan Idris (UPSI)	upsi.edu.my
Universiti Tun Hussein Onn Malaysia (UTHM)	uthm.edu.my
Universiti Teknikal Malaysia Melaka (UTeM)	utem.edu.my
Universiti Malaysia Perlis (UniMAP)	unimap.edu.my
Universiti Malaysia Terengganu (UMT)	umt.edu.my
Universiti Malaysia Pahang (UMP)	ump.edu.my
Universiti Sains Islam Malaysia (USIM)	usim.edu.my
Universiti Sultan Zainal Abidin (UniSZA)	unisza.edu.my
Universiti Malaysia Kelantan (UMK)	umk.edu.my
Universiti Pertahanan Nasional Malaysia (UPNM)	upnm.edu.my

TABLE II: LIST OF UNIVERSITY PAGE COUNT AND IN-LINK COUNT

University	Google Page Count	Majestic Page Count	Majestic In-link Count
UM	329000	97064	78192
USM	356000	257366	133981
UKM	40900	3402929	104252
UPM	658000	83659	134567
UTM	666000	238249	282666
UiTM	1170000	166362	73599
UIA	416000	51188	24030
UMS	179000	43793	915731
UNIMAS	35400	27483	13907
UUM	1040000	25172	31497
UPSI	281000	38776	18176
UTHM	455000	29110	19542
UTeM	516000	6103	13022
UniMAP	294000	102736	15620
UMT	158000	4186	9466
UMP	79700	19984	21607
USIM	597000	13015	16137
UniSZA	112000	4559	2591
UMK	231000	1591	8440
UPNM	937000	5911	18899

IV. RESULTS

The page count and in-link count for public Malaysian universities were listed in (II). UiTM have the largest Google page count, followed by UUM and UPNM. For the Majestic page count UKM have the highest count, followed by USM and UTM. As for Majestic in-link count, UMS has the highest count, followed by UTM and UPM. The average count for Google Page Count is 427550 pages with the Population standard deviation of 322824 pages. For Majestic Page Count, the average is 230961 pages with standard deviation of 731425 pages. Lastly, Majestic In-link Count have an average of 96796 with standard deviation of 199207.

The WIF for Public Malaysian universities were listed in (III). For Google WIF, UMS have the highest Impact Factor followed by UKM and UTM. For Majestic WIF, UMS again have the highest Impact factor followed by UMK and UPNM. For the Average WIF, UMS also have the highest Impact Factor followed by UMK and UPNM. The average Google WIF parameter is 0.503 and the population standard deviation is 1.188. For Majestic WIF parameter, the average is 2.240 with the standard deviation of 4.448. Lastly, for the average WIF parameter, the average is 1.372 and the standard deviation is 2.733.

TABLE III: LIST OF UNIVERSITY WIF

University	Google WIF	Majestic WIF	Average WIF
UM	0.238	0.806	0.522
USM	0.376	0.521	0.4485
UKM	2.549	0.031	1.29
UPM	0.205	1.609	0.907
UTM	0.424	1.186	0.805
UiTM	0.063	0.442	0.2525
UIA	0.058	0.469	0.2635
UMS	5.116	20.91	13.013
UNIMAS	0.393	0.506	0.4495
UUM	0.03	1.251	0.6405
UPSI	0.065	0.469	0.267
UTHM	0.043	0.671	0.357
UTeM	0.025	2.134	1.0795
UniMAP	0.053	0.152	0.1025
UMT	0.06	2.261	1.1605
UMP	0.271	1.081	0.676
USIM	0.027	1.24	0.6335
UniSZA	0.023	0.568	0.2955
UMK	0.037	5.305	2.671
UPNM	0.02	3.197	1.6085

V. DISCUSSION

The results revealed above showed that UTM, UiTM and UUM had higher Google Page Count compared to other public universities. The "UUM Repository" (URL: http://repo.uum.edu.my) and "UUM Electronic Theses and Dissertations" (URL: http://etd.uum.edu.my) can thus be regarded as successful as these systems have actually contributed to more than 300 links or 50 % out of the 590 samples in Google Page Count. These systems can be the example to other universities to improve the quality of their own websites. As for UTM, the website of the International

Business School (URL: http://www.ibs.utm.my) had contributed more than 100 links or 18 % out of the 550 samples in the Google Page Count. This website is successful because it is multilingual, i.e. has English, Bahasa Indonesia, Urdu, Maltese, Greek, Irish, Italian, and other languages versions. This has made the website search engine-friendly and the users need not translate the content manually.

On Google Page Count, only 8 of the universities are above the average as shown in Fig. 1. For Majestic Page Count, 3 are above average as shown in Fig. 2. Only 5 of the universities are above average for Majestic In-link count parameter as shown in Fig. 3.

On Google WIF parameter, only 2 of the universities are above the average as shown in Fig. 4. For Majestic WIF parameter, 4 are above average as shown in Fig. 5. Only 3 of the universities are above average for the Average WIF parameter as shown in Fig 6.

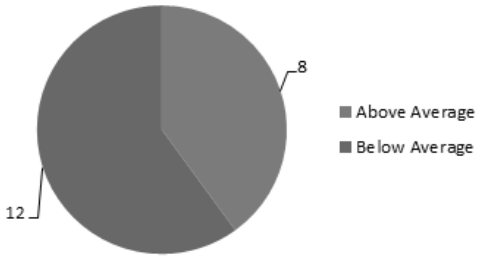

Fig. 1. Average distribution of universities for google Page count parameter.

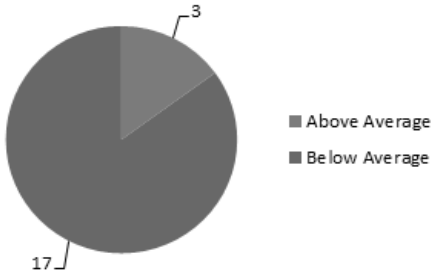

Fig. 2. Average distribution of universities for majestic page count parameter.

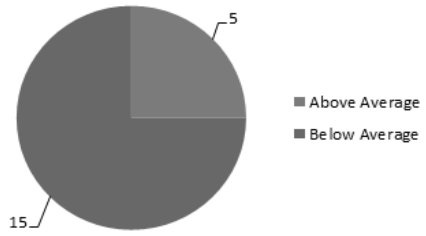

Fig. 3. Average distribution of universities for majestic in-link count parameter.

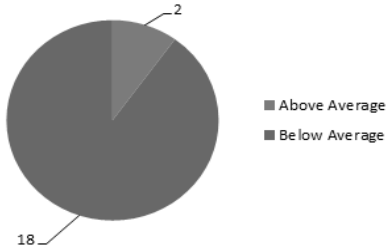

Fig. 4. Average distribution of universities for google WIF parameter.

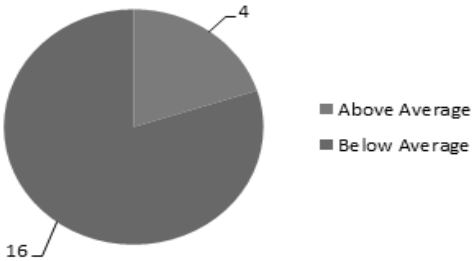

Fig. 5. Average distribution of universities for majestic WIF parameter.

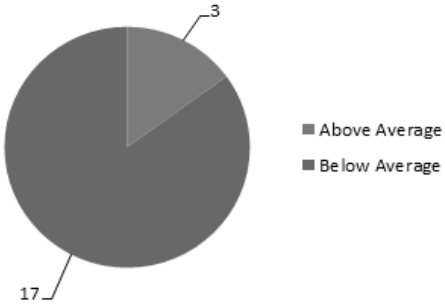

Fig. 6. Average distribution of universities for average WIF parameter.

VI. Summary

This study has shown that the public universities in Malaysia do not have a high impact in the virtual world. UMS have the highest Average WIF with 13.013 followed by UMK with 2.670 WIF and in the third place is UPNM with 1.289 WIF.

Some of the reasons for the Malaysian public universities having low WIF are: faculty members tend to publish their works using the traditional methods compared to the digital publishing, low quantity of materials that can be cited, and limited access to the Institutional repository.

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Abdul Arif was born in a small fishing town at Kuala Perlis, Perlis, Malaysia on 15 September 1986. He went to public school before entering the matriculation program at Kolej Matrikulasi Kedah on 2004. In 2010 he graduated his degree Bachelor of Engineering (Mechanical –Materials) in Universiti Teknologi Malaysia. He previously worked with Universiti Teknologi Malaysia Webteam from 2010 to 2011. Currently, he is still pursuing his master in Master of Computer Science in Universiti Teknologi Malaysia.

N. A. Ismail is an academic staff in Computer Graphics and Multimedia Department, Faculty of Computer Science & Information Systems, Universiti Teknologi Malaysia (UTM). He received his B.Sc. from UTM, Master of Information Technology (MIT) from National University of Malaysia, and Ph.D. in the field of Human Computer Interaction (HCI) from Loughborough University. He has been an academic staff at Computer Graphics and Multimedia Department for about thirteen years and currently, he is the Deputy Director of Corporate Affairs (since April 2009) for Universiti Teknologi Malaysia.