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Comparison of websites based on webometrics index, Alexa's traffic rating and estimated value of Sinium Case study: Islamic Azad University (IAU), five units

Omran Ahmadi
Iran Public Libraries Foundation, omranahmadi65@gmail.com

Mozaffar CheshmehSohrabi
Associate Professor in Department of Knowledge and Information Science, University of Isfahan, mo.sohrabi@edu.ui.ac.ir

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Abstract

The purpose here is to compare the status of website of five IAU unites based on webometrics, Alexa's traffic rating and estimated value of Sinium . This applied research is run through a descriptive method, where Webometrics index, Alexa's traffic rating and estimated value of Sinium are applied. The statistical population consists of five: IAU Kerman, Shiraz, Bushehr, Bandar Abbas and Ahvaz units' websites. The results reveal that Ahvaz unit with the average of 10356 pages is ranked the highest and the first and Bushehr unit with the lowest 4441 pages is ranked the last. As to the enriched files, Kerman and Ahvaz units are ranked first and last, with 2248 and 459 files, respectively. As to visibility (internal linkage), Kerman and Ahvaz units rank first and last with 9th and 5th rankings, respectively. As to Sinium, Shiraz and Bandar-Abbas units have the highest and the lowest estimated values of $18144 and $3780 respectively. In general, based on the webometrics database (size, visibility, formatted files and count of articles in Google Scalar) and the traffic rating of Alexa's website and the estimated value of the web site, Shiraz unit has the highest performance among IAU units. It is assumed that national and global universities in terms of having characteristics and elements like: the active presence of professors and researchers, graduate programs promotion, credibility, up-to-date, user-friendly, free access to articles, popularity, etc. are of higher status. As to their websites in terms of visibility, size, rank, monitoring, traffic rating, and increased value, they are ranked higher.

Keywords: Webometrics, Web Ranking, Alexa, Sinium, Islamic Azad University (IAU) units, websites Comparison

Introduction

The extensive, dynamic, and interactive Web environment, like any other environment, requires study. This environment has many information structures, like websites, weblogs, wikis, web search engine, etc., development of which requires studying. For this purpose, a new areas of study in science have become evident, that is, Webology, Webometrics, Web Design, web search engines, semantic web, etc.

One of the most important areas of study with more reflection requirement is the Webometrics. According to Björneborn and Ingwerson (2004) Webometrics is: "the study of the quantitative aspects

of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches". Webometrics indicates the status of traffic indicators for websites as well. This is possible through Alexa's web site, launched in 1996 by Brewster Kahle and Bruce Gilliat. This website provides different reports of website traffic ratings (Alexa, 2019).

In addition to websites and webmaster Alexa, the websites, can be assessed through the Sinium website. This website is one of the Dynamic Inventions, LLC DBA companies, which, for free and unrestricted access to more than 50 tools, can provide relatively appropriate information on websites or blogs for security, speed, link analysis, page views, ratings, etc. to their holders or researchers (Sinium Internet, 2018).

The prevalence of the Web information environment these days together with the context in which the information is provided and demanded inevitably lead to the presence of individuals, organizations and institutions. In this context, the presence of Universities is essential. Developing a multilingual website provides a university with golden opportunity to introduce its services, activities and provide accurate information to users. These websites channelize the access to university systems in a rapid and cheap sense manner. Today, the website of every university as a multifunctional package is its main link to the academic, why not non-academic community.

Running studies in this context is becoming widespread and fluid. The advent of many webometric tools has its effect on these studies. In addition to the webometrics featured in many studies, it is considered for website ranking, it should be noted that research into Web the websites ranked traffic and visits. Together with the standard for the count of loyal audience of a website, the quality of its structural and content features should be of major concern.

In this study, first, the IAU units' websites' status is assessed based on the four size, visibility, formatted files and count of articles criteria in Google Scholar in webometrics; next, the traffic indicators of these websites are extracted in Alexa and then the estimated value of these websites is determined by the given Website. The correlation between the World rank and the estimated value of these IAU units' websites is determined through Alexa, Webometrics and Sinium. Accordingly, the answers to the following questions are sought here:

1. What is the count of articles indexed by IAU units in the Google Scholar?
2. What is the size and the rank of IAU units' websites?
3. What is the status of IAU units' websites based on enriched files?
4. What is the status of visibility (internal links) of IAU units' websites?
5. What is the ranking of IAU units' websites as to the webometrics indicators?
6. What is the ranking of IAU units' websites as to webometrics and Alexa?

7. Is there a significant correlation between the world rank and the estimated values of these IAU units as to Alexa, Webometric and Sinium?

Research Background

Considering the great volume of research run in the Webometrics and Alexa area, here are a few examples of them:

Jeyshankar (2016) ranked the South Indian University websites by applying the Alexa's links with the objective to collect the number of university website links in the four Tamil Nadu, Andhra Pradesh, Karnataka and Kerala state universities. In Tamil Nadu and Andhra Pradesh, five universities and Karnataka six universities have gained over 1,000 links from Alexa. In Kerala, no university received over 1,000 links from Alexa. He found that the state universities need to focus on issues related to their website to receive more incoming links. Kumar (2016) run a webometric analysis on the Himmancan Pradesh non-governmental universities' websites based on the Web Impact Factor, Link Analysis, and the Evaluation of Applied Technologies for the Website Development in such Universities. Their findings indicate that such universities in the northern section of Indian serve a considerable student count. To assess the online content storage, organization, and structure of a university website, devising standard assessment process is a must.

Peker, Kucukozer-Cavdar & Cagiltay (2016) assessed the correlation between Web presence and Web accessibility of 5 universities in Turkey. Their findings indicate that universities can increase their website usability by expending their website size on the web. Universities can estimate their web usability levels by evaluating their website rankings, and increase their ranking in webometrics ranking system by improving the usability of their websites. For this purpose, the Web developers should design more practical and user-friendly websites. Gupta & Walia (2017) assessed the structure and presence of websites of European national libraries based on Webometrics and found that most European national libraries have websites with sizeable web pages, links, and rich content files, moreover, most European national libraries' websites have a user-friendly structure.

According to Al-Hagery (2017) there exists no link between the global ranking of universities and their website features, and the study of updating the current rating model by adding a new criterion reflects the properties of the website related to its content and structure. His findings lead to both a change and enhancement of the RWWEU model, which is more comprehensive than the current one. The participation of university websites in the university ranking to encourage their websites to reach a higher level among prominent universities. Baka & Leyni (2017) seek to determine whether there exists a difference between visibility and access to top university websites at global scale. By comparing the visibility and accessibility profile of high and low class university websites, they determined that top university websites are more visible and more accessible than other websites.

Jati & Dominic (2017) assessed the Indonesian universities' websites using the Entropy and Promethean method and found that applying entropy as a more objective method with Prometheus 2 is more appropriate than a webometric system in ranking university websites. Ramanayaka, Chen & Shi (2018) assessed the application of webometrics techniques in measuring and evaluating the visibility in SriLanka university libraries' websites. They found such studies will be contributive for the librarians to assess their strengths and weaknesses, especially the weaknesses associated with the library websites' functionality. Vásquez et al (2018) run an assessment to cluster of 100 Latin American universities based on 2018 webometrics and revealed that there exists a high correlation between the rankings and the count of graduate programs.

Torres-Samuel et al (2018) analyzed the factors influencing the technical visibility in the Latin American universities' websites' rankings published by the webometrics database. They found that graduate programs, the content of profiles in Google Scholar, and the use of scientific and social networks in sharing the success of the web campus in Latin American universities are influential. Mirica & Toma (2018) reviewed the websites of Romanian state and non-state universities and realized visits and links in state universities websites are more than non-state universities.

Going through the available literature, two aspects become evident: first, most of the studies focus on website rankings and second, no study is found on website evaluation based on webometrics, Alexa's traffic rating and estimated value of Sinium. For this purpose attempt is made here to evaluate the indicators proposed in webometrics, and to assess the status of the websites visited by the subject universities here.

Method and materials

This applied research is run through a descriptive method. This study is run by applying the webometric methods by Google Scholar assistance and the degree of visibility. The size, visibility, formatted files and article count in Google scholar of the websites of IAU Kerman, Shiraz, Bushehr, Bandar-Abbas, and Ahvaz units constituted the subject of this study.

The count of retrieved pages of five subjects unites is calculated through the: Site: iaukerman.ac.ir, Site: iaushiraz.ac.ir, Site: iaubushehr.ac.ir, Site: iaubandarabbas.ac.ir and Site: iauahvaz.ac.ir by applying the Google, Yahoo, Live Search, Exalead search engines.

The example of the files formatted by Google search engine in all subject units are expressed as follows:

Site: iaukerman.ac.ir filetype: format (.doc, .pdf, .ppt, .ps),

Site: iaushiraz.ac.ir filetype: format (.doc, .pdf, .ppt, .ps),

Site: iaubushehr.ac.ir filetype: format (.doc, .pdf, .ppt, .ps),

Site: iaubandarabbas.ac.ir filetype: format (.doc, .pdf, .ppt, .ps), and

Site: iauahvaz.ac.ir filetype: format (.doc, .pdf, .ppt, .ps),

An example of determining the count of indexed articles in these unites' websites in Google Scholar, is as follows: Site: iauahvaz.ac.ir

An example of counting visibility or internal links in Google and Yahoo is as follows:

Link domain: iauahvaz.ac.ir - Site iauahvaz.ac.ir

Here, after reviewing websites by Webometrics and Alexa, the estimated value of these websites are studied after assessing their pages on the Simon website.

All data from this study are retrieved in Dec. 2018.

Research findings

These findings are subject to the response to the eight main questions stated in the introduction.

Question 1: What is the count of articles indexed by IAU units in the Google Scholar?

The findings are tabulated in Table 1.

Table 1. The status of the websites of centers of IAUs

IAUs units	The count of articles indexed in Google Scholar
Kerman Unit	**46**
Shiraz unit	***152***
Bushehr Unit	**26**
Bandar Abbas Unit	***17***
Ahvaz Unit	**94**

The most and the least counts are evident in this table.

Question 2: What is the size and the rank of IAU units' websites?

Table 2. The size and the rank of IAU units' websites in Google, Yahoo, Live search and Exalead search engines

IAUs units	Google	Yahoo	Live Search	Exalead	Page Average	rank
Kerman Unit	23700	6860	2700	36	8324	**3**
Shiraz unit	26400	8300	3270	170	9535	**2**

Bushehr Unit	12900	3460	1360	43	*4441*	**5**
Bandar Abbas Unit	10500	6490	2560	40	4897	**4**
Ahvaz Unit	32200	6590	2620	13	*10356*	**1**

The most, Ahvaz unit and the least, Bushehr unit average page counts are evident in this table.

Question 3: What is the status of IAU units' websites based on enriched files?

Table 3. The status of IAU units' websites based on enriched files in Google

IAUs Units	.doc	.pdf	.ppt	.ps	Total
Kerman Unit	8	2240	0	0	***2248***
Shiraz unit	10	366	0	0	***376***
Bushehr Unit	18	918	4	0	**940**
Bandar Abbas Unit	7	1210	6	1	**1224**
Ahvaz Unit	5	451	3	0	**459**

The most, Kerman unit and the least, Shiraz unit enriched files counts are evident in the total column.

Question 4: What is the status of visibility (internal links) of IAU units' websites?

Table 4. The status of visibility (internal links) of IAU units' websites in Google and Yahoo

IAUs Units	Google	Yahoo	Count	rank
Kerman Unit	23700	6860	9	1
Shiraz unit	26400	8300	8	2
Bushehr Unit	12900	3460	7	3
Bandar Abbas Unit	10500	6490	7	3
Ahvaz Unit	32200	6590	5	4

The most and the least rankings are evident in this table.

Question 5: What is the ranking of IAU units' websites as to the webometrics indicators?

Table 5. The details of question 5

IAUs Units	Presence Index	Impact Index	Free information flow	Scientific Excellence

Kerman Unit	5459	11514	4945	5984
Shiraz unit	**4641**	11750	4353	**2574**
Bushehr Unit	8079	12879	9180	3893
Bandar Abbas Unit	5589	**10934**	7412	4292
Ahvaz Unit	4909	13419	**3878**	5984

As observed in Table 5, as to *presence index* of the webometrics database, Shiraz unit ranks the highest (4641), as to impact index, Bandar-Abbas unit ranks the highest (10934), as to free information flow, Ahvaz unit ranks the highest (3878) and as to scientific excellence index, Shiraz unit ranks the highest (2574). Consequently, the Shiraz unit by gaining the highest ranking twice is the highest performer.

Question 6: What is the ranking of IAU units' websites in webometrics and Alexa?

Table 6. The ranking of IAU units' websites based on Alexa website statistics (traffic rank)

IAU units	World Rank	Ranked in Iran	Site Ranking Status	Total Sites Linking In
Kerman Unit	205875	8183	ascending	328
Shiraz unit	121077	4522	ascending	373
Bushehr Unit	200498	9766	ascending	281
Bandar Abbas Unit	298598	13115	descending	386
Ahvaz Unit	125780	5046	ascending	336

As observed in Table 5, the traffic rank The Shiraz unit with the World (12,107,777) and the domestic rank (4522) have the highest performance and Bandar-Abbas unit with the world traffic rank (29,898) and the domestic rank (13,115) have the lowest performance on the Alexa website.

The status of the traffic rank, in comparison with, the international and domestic ranking is tabulated in the above Table. As to international and domestic ranking, the highest and the lowest ranking is of Shiraz and bander-Abbas units, respectively. As to total sites linking, the highest and the lowest is of bander-Abbas and Busher units, respectively.

Table 7. The ranking of IAU units' websites based on webometrics website statistics in 2018

IAUs Units	World Rank	Ranked in Iran	Asian rank
Kerman Unit	8379	196	2882
Shiraz unit	3681	100	1204
Bushehr Unit	5593	161	1813
Bandar Abbas Unit	5139	148	1685
Ahvaz Unit	9105	203	3239

The status of the subject universities, in comparison with, the world and Asian ranking is tabulated in the above Table. As to world and domestic ranking, the highest and the lowest ranking is of Shiraz and Ahvaz , respectively.

The traffic rating of the websites of the subject unite is diagrammed in Fig 1.

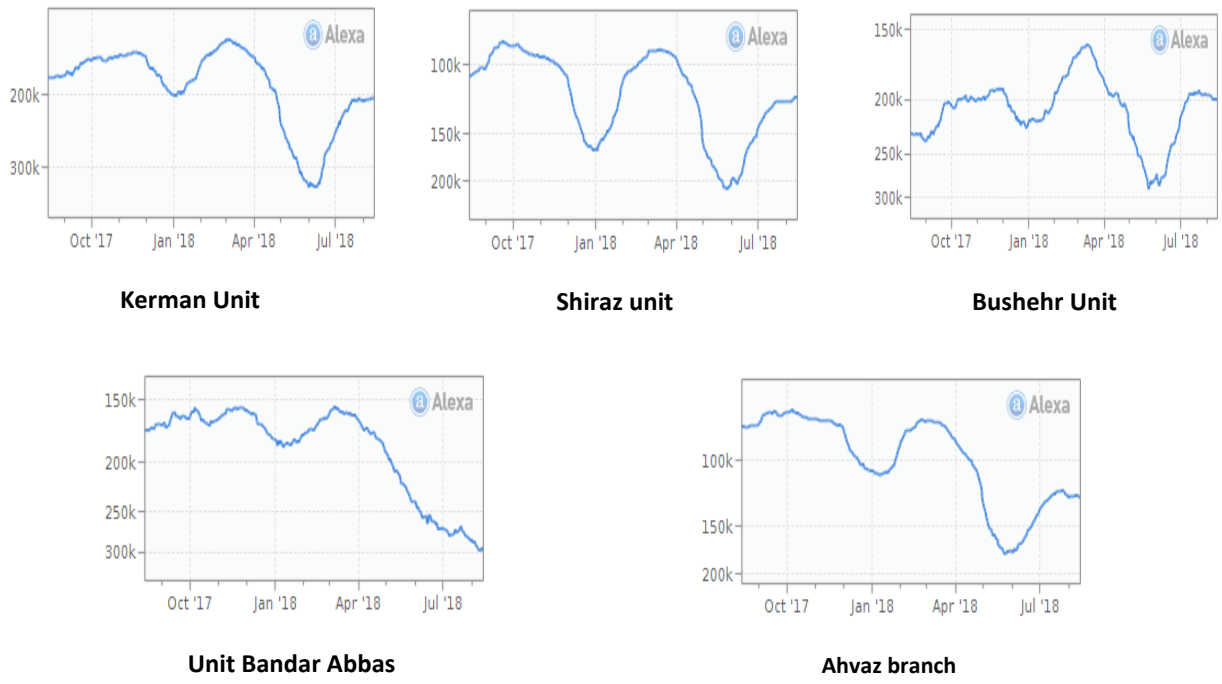

Figure 1. Traffic Ratings the subject unites

Question 7: Is there a significant correlation between the World rank and the estimated values of these IAU units in Alexa, Webometrics and Sinium?

Table 8. Relationship between world Rank and Estimated Value of IAU units' websites in Alexa, Webometrics and Sinium

IAUs Units	World Rank	Estimated Value	r	P<
Kerman Unit	205875	10560		
Shiraz unit	121077	18144		
Bushehr Unit	200498	10896	-0.963	**0/008**
Bandar Abbas Unit	298598	7380		
Ahvaz Unit	125780	17292		

As observed in Table 8, as to Estimated Value, in comparison with world ranking, the highest and the lowest is of Shiraz ($ 18,144) and bander-Abbas ($ 7,380), respectively.

There is only a significant correlation between Alexa's global ranking and the estimated value at 0.01, therefore, the correlation coefficient of -0.963 represents the negative correlation between these two variables, indicating that this correlation is high and strong. Accordingly, there exist a parallel between high Alexa ranking as to traffic rank and the high Sinium ranking as to estimated value.

Discussion and conclusion

One of the objectives of websites evaluation is to provide a mirror for managers and decision makers of these websites to compete and promote website dynamism and to better understand and respond to the needs of users. To achieve this objective, having a routine and scheduled periodical control is necessary.

The status of the subject unites' websites are assessed here. This study seeks, first to provide a webometric analysis of these websites, and second, to reveal, how much is the website value affected by Webometric and Alexa?

The results indicate that Shiraz and Bandar-Abbas units with 152 and 17 articles have the highest and lowest count in Google Scholar, respectively. The relatively low activity of the studied universities in Google Scholar indicate that the researchers and professors there have little presence in the content and profiles of Google Scholar, something with a direct effect in determining their ranks in webometrics. The results here correspond with that of Jalal et al.

The results of the subject websites on the four Google, Bing, Yahoo and Exalead search engines reveal that: Ahvaz Unit has the most pages and the first ranking, and Bushehr unit has the least pages and ranking. The Google search engine seems to have a great deal of relevance in terms of the size and rank of the websites under review, while the other tree search engines must be of concern as well.

In case of enriched files, Kerman and Ahvaz unites are ranked first and last, with 2248 and 459 files, respectively. Comparison of the findings of this study indicate that the university websites in question often use PDF and Word formats.

In case of visibility (internal linkage) of IAU units' websites, Kerman unit, with a total of 9 link, and Ahvaz unit, with a total of 5 link, ranked first and last, respectively. Accordingly, the

websites studied in terms of visibility (internal linkage) are in a state of disruption. The results of this part of the research are similar to the findings of many previous studies like Ramanayaka, Chen & Shi (2018) and Torres-Samuel et al (2018).

Finally, it should be noted that the use of websites by users and their user-friendliness is more important than their Webometrics rank in terms of their estimated value. The universities with high status at national and international levels in terms of features and elements like: the dynamism of professors and researchers, the strengthening of graduate programs, credibility, being up-to-date, being user-friendly, having free access to articles, etc. are in a higher position, in terms of visibility, size, traffic rank, and estimated value.

References

Alexa: About Alexa traffic ranking (2019). Available from: http://www.alexa.com

Al-Hagery, M. A. H. (2017). Universities' Global Ranking Criteria Modification According to the Analysis of Their Websites. *IJCSNS*. 17(12), 67-78.

Baka, A. B. A., & Leyni, N. (2017). Webometric Study of World Class Universities Websites. *Qualitative and Quantitative Methods in Libraries*, 105-115. Available from: http://qqml-journal.net/index.php/qqml/article/view/367

Björneborn, L. & Ingwersen, P. (2004). Toward a basic framework for webometrics. *Journal of the American Society for Information Science and Technology*, 55(14), 1216-1227.

Gupta, M., & Walia, P. K. (2017). WEB PRESENCE AND STRUCTURE EVALUATION OF THE EUROPEAN NATIONAL LIBRARIES'WEBSITES: A STUDY. *Library Philosophy and Practice (e-journal)*.

Jalal, S. K., Sutradhar, B., & Mukhopadhyay, P. (2016). Webometric Analysis of Top Ten Asian and Indian Universities. Webometric Analysis of Top Ten Asian and Indian Universities. e- Lis (e-prints in library & information science). 53(2), 119-127.

Jati, H., & Dominic, D. D. (2017). A New Approach of Indonesian University Webometrics Ranking Using Entropy and PROMETHEE II. *Procedia Computer Science*. 124, 444-451.

Jeyshankar, R. (2016). Websites of Universities in South India by Alexa Inlinks: A Webometric Analysis. Available from: http://repository.kln.ac.lk/handle/123456789/14950

Kumar, J. (2016). Webometric Analysis of Web-domains of Private Universities of Himachal Pradesh. *Library Herald*. *54*(4), 459-474.

Mirica, A., & Toma, I. E. (2018). Web visibility of Romanian universities–an analysis based on website analytics and social media data. Editorial Universitat Politècnica de València. 571-578. doi:10.4995/HEAD18.2018.8036

Peker, S., Kucukozer-Cavdar, S., & Cagiltay, K. (2016). Exploring the relationship between web presence and web usability for universities: A case study from Turkey. *Program*. Emerald insight. *50*(2), 157-174. Available from: https://www.emeraldinsight.com/doi/abs/10.1108/PROG-04-2014-0024

Ramanayaka, K. H., Chen, X., & Shi, B. (2018). Application of Webometrics Techniques for Measuring and Evaluating Visibility of University Library Websites in Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 21(1).

Sinium Internet: About the sinium web-development and Report Card tool (2018). Available from: https://www.sinium.com/seo/report-card.

Torres-Samuel, M., Vásquez, C., Viloria, A., Borrero, T. C., Varela, N., Cabrera, D., ... & Lis-Gutiérrez, J. P. (2018). Efficiency Analysis of the Visibility of Latin American Universities and Their Impact on the Ranking Web. In International Conference on Data Mining and Big Data. Springer, Cham, 235-243.

Vásquez, C., Torres-Samuel, M., Viloria, A., Lis-Gutiérrez, J. P., Borrero, T. C., Varela, N., & Cabrera, D. (2018). Cluster of the Latin American Universities Top100 According to Webometrics 2017. In International Conference on Data Mining and Big Data. 276-283. Springer, Cham (2018, June).