

Iranian State University Websites

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Abstract

University websites play an important role in disseminating educational and research information to universities. They are a vital port for accessing the universities' scientific information for researchers, faculty members, and students. The goal of this study was to compare evaluation methods such as Web Assessment Index (WAI), Web Quality Evaluation Method (WebQEM), and webometrics for evaluating Iranian state university websites. In this analytical survey, the data collection tools were checklists prepared by the WebQEM, WAI, and webometrics. Descriptive statistics (mean and standard deviation) and analytic statistics (Spearman's rank-difference correlation coefficient) were used for data analysis. The results indicated that Iranian state university websites were in a good condition (mean=75.14) according to four main criteria in WebQEM, in a good condition (mean=69.52) according to five main criteria in WAI, and in a very good condition (mean=88) according to five main criteria in webometrics. Also, differences can be seen in ranking of university websites. Only *Ferdowsi University of Mashhad* was in first place in terms of the three assessment methods. The hypotheses assumed that there was a positive correlation between WebQEM, WAI, and webometrics. Using the results of this study could help university website designers to fix weaknesses in order to reach an active participation in these websites.

Keywords: Web Assessment Index (WAI), Web Quality Evaluation Method (WebQEM), webometrics, Regional Information Center for Science and Technology (RICeST), University websites, Iran

Introduction

Universities use the World Wide Web for introducing themselves and interacting with

students, faculty members, researchers and other stakeholders, the information of who is available online. Visibility of university websites on the web and their contents presented to users is proof of their capability and reputation.

Today, university websites of many countries are used as a communication tool for multiple purposes: introducing faculty members to prospective students, providing educational resources, public-access library catalogs, electronic journals and publications (Nourozi, 2005).

The purpose of web design in higher-education institutions and universities is to provide more efficient access to information of the center within the center, at minimal cost and time (Mohamad Esmael, 2005).

Designing university websites regardless of assessment principles and standards could cause problems. Therefore, considering the importance of websites, and their performance measurement, ranking and active presence, university websites should be frequently evaluated.

For suitable evaluation of websites and to achieve the desired result, there are standards for evaluating website quality. Standard assessment methods are Web Assessment Index (WAI), Web Quality Evaluation Method (WebQEM), and webometrics. They are used based on the standards and quality assessment models, using quantitative methods and systematical steps in evaluating the quality of web sites. This study was done to have a better recognition of the capabilities of assessment methods, level of their overlap, and the extent to which they achieve accurate results.

There are many qualitative evaluation methods that should be compared in order to select the most appropriate method, with respect to the purpose of assessment and the specific.

Currently, educational websites are considered as projects which have been developed by universities or other entities in order to present themselves, admit students, and supply different educational services (Vultur and Marincas, 2007).

Research questions

1. What is the ranking of the top twenty Iranian state university websites according to WebQEM?
2. What is the ranking of the top twenty Iranian state university websites according to WAI?
3. What is the ranking of the top twenty Iranian state university websites according to webometrics?
4. Is there any correlation between WebQEM, WAI, and Webometric methods in evaluating Iranian state university websites?

Hypotheses

1. There is a correlation between WebQEM, WAI, and webometrics.

Literature Review

There are many assessment methods for websites. In past years, studies have been done to evaluate university websites, each of which has considered perspectives, approaches, and different assessment criteria. Olsina et al. (1999), proposed a quantitative assessment approach for evaluating quality of websites (quantitative evaluation of websites). They evaluated the level of accomplishment of the required quality characteristics (such as usability, functionality, reliability, efficiency, and derived sub-characteristics) in six typical academic web sites. This research a descriptive survey and used a researcher-made checklist to collect data. The results showed that the website usability with an average score of 66.3 was in a good condition, functionality with an average score of 58.78 was in a middle condition, reliability with an average score of 79 was in a good condition, and efficiency with an average score of 67.62 was also in a good condition. Moreover, Standford University with a score of 79.76 was in the first place, UTS Australia with score of 69.61 was in the second place, UPC Spain University with a score of 66.91 was in the third place, and NUS Singapor with a score of 54.46 was in the final place. Mateos et al. (2001) developed a new web assessment index to evaluate Spanish university websites. In this descriptive survey and the researchers had used WAI (with 4 categories of accessibility, speed, navigation, and content) to evaluate 65 university websites in Spain. The results indicated that the websites' accessibility with an average score of 6 was in an inappropriate condition, speed was in a moderate condition, navigation with an average score of 17 was in a good condition, and content with an average score of 16 was in a moderate condition. Also, Alicante Universiy with a score of 0.76 was in the first place, Murica University with a score of 0.72 was in the second place, Cordoba Universiy with a score of 0.71 was in the third place, and Avila University with a score of 0.31 was in the final place. Farajpahlu (2004) evaluated 34 Iranian academic and research websites using descriptive and evaluative analyses and compared the results with the WAI check list. This research was used to gather some data market position automatic tool. The findings showed that 61.8% of Iranian university web sites were not designed according to WAI and client expectations while 21.3% of them were designed accordingly. Vultur and Marincas (2007) evaluated 5 Romanian websites of faculties of economics. This research used engineering-based methodology and WAI (5 categories of accessibility, speed, navigation, content, and reliability) to evaluate 5 Romanian webistes of faculties of economics. The results showed that speed with an average score of 10 was in a very good condition while accessibility, navigation, content, and reliability with average scores of 6, 7, 35.5, and 6.6, respectively were in moderate conditions. Also, Al.I.Cuza Iasi University with a score of 81 was in the first palce and West University Timisoara with score

of 56 was in the final place. Ghane (2009) evaluated Iranian academic websites using webometrics. In a descriptive and evaluative study, a checklist-based on webometrics was used to assess the quality of 240 Iranian academic websites. The results showed that scientific information database website was in the first place and Sharif University of Jahad was in the final place. Pashazadeh (2010) evaluated website quality of central library of medical universities in Iran using WebQEM. This research was a descriptive study using a researcher-made checklist based on WebQEM to assess the quality of 24 websites of the central library of medical universities in Iran. The results demonstrated that half of the studied websites were "Good" while the other half were "Average". Conclusions were made that 41% of the websites had a desirable position and 59% were in an average position. Militaru (2011) evaluated the quality of websites of some representative universities from Romania, using Web QEM which was developed between 1998 and 2000 by a group of researchers from National University of La Pampa (Argentina) led by Luis Olsina. This research was a combination of descriptive survey and delphi technique and used the online quality evaluation tool (Xenu) to find broken links, and a questionnaire to collect data of three Romanian university websites. The results showed that their usability (average score=61.35) and functionality (average score=75.6) were in a good condition, and the websites' reliability (average score= 93.54) and efficiency (average score=87.8) were in very good conditions. Also, Ubp University, Ase University, and Unibub University ranked first, second, and third with scores of 85.19, 82.44, and 78.16, respectively.

A research group belonging to the Consejo Superior Investigaciones Cientificas (CSIS) (2014) has ranked world universities using quantitative methods and designed and applied indicators that measure the scientific activity on the web. The cybermetric indicators are the perfect complement to the results obtained with bibliometric methods in scientometric studies. The original aim of ranking was to promote academic web presence, supporting Open Access initiatives for increasing the transfer of scientific and cultural knowledge generated by universities to the whole society. Webometrics uses link analysis for quality evaluation, introduces a composite indicator, combined with a weighting system and a series of indicators and using an "a-priori scientific model" for building the composite indicator. The current composite indicator is: Impact Rank, Present Rank, Openness Rank, and Excellent Rank. Cybermetrics Lab evaluated 11992 university websites worldwide. The results demonstrated that Harvard University was in the first place, Massachusetts Institute of Technology was in the second place and Stanford University was in the third place. Also, ranking of university websites in Iran showed that University of Tehran was in the first place, Tehran University of Medical Sciences was in the second place and Ferdowsi University of Mashhad was in the third place.

The literature review showed that only one assessment method has been used for evaluating university websites and no studies have compared results of assessment methods

so far. Therefore, this study aimed to compare the results of evaluating Iranian university websites using WebQEM, WAI, and webometrics.

Methodology

This study was an evaluative study. The statistical population consisted of 100 websites of Iranian state universities accredited by the Ministry of Science, Research, and Technology. The research population was twenty superior websites of Iranian state universities accredited by the Ministry of Science, Research, and Technology (Gharibe Niazi, 2013), Information center for science & technology (2013). The checklists prepared by Vultur and Marincas (2007) for WAI, Olsina et al. (1999) for WebQEM, and Ghane (2009) for webometrics were used.

This study was done from 19 February to 22 July, 2013. The findings were analyzed using descriptive statistics (mean and standard deviation) and analytic statistics (Spearman's rank-difference correlation coefficient). Table 1 shows the measurement scales for the assessment.

Table 1

Measurable Scale

Measurement scale	Evaluation
0-0.2	Very bad
0.21-0.4	Bad
0.41-0.6	Middle
0.61-0.8	Good
0.81-1	Very good

Findings

1. What is the ranking of the top twenty Iranian state university websites according to WebQEM?

Table 2 shows that evaluating websites according to four main criteria of WebQEM led to obtaining reliability with the mean score of 0.82 which was in a very good condition. Functionality with the mean score of 0.74 was located in a good condition. Efficiency with the mean score of 0.73 was in a good condition. Finally, usability with the mean score of 0.72 was in a good condition. None of the studied websites were in the middle, bad and very bad conditions. Iranian university websites, according to four main criteria with the mean score of 75.14 were in a good condition.

Also, Table 2 demonstrates that Ferdowsi University of Mashhad with the highest points was in the top ranking, University of Isfahan with a score of 0.798 was is in the second ranking and Tarbiat Modares University with a score of 0.797 was is in the third ranking. In

terms of usability, Ferdowsi University of Mashhad with a score of 0.89 was in the first place and Azarbaijan Shahid Madani University with a score of 0.49 was at final level. In terms of functionality Power and Water University of Technology with a score of 0.87 was in the first place and Hakim Sabzevari University with a score of 0.58 was in the final place. In terms of reliability, Ferdowsi University of Mashhad, Sharif University of Technology, Azarbaijan Shahid Madani University, Shahrekord University and Neyshabur University with scores of 1 were in the first place, and Isfahan and Arak University of Technology with a score of 0.64 were in the final place. In terms of efficiency Tarbiat Modares University with a score of 0.93 was in the first place and University of Neyshabur with 0.52 was in the final place.

Table 2

University websites in WebQEM

Rows	Name of university	Usability	Functionality	Reliability	Efficiency	WebQEM score	Ranking
1	Ferdowsi University of Mashhad	0.89	0.79	1	0.59	0.822	1
2	Isfahan	0.84	0.8	0.64	0.89	0.798	2
3	Tarbiat Modares	0.78	0.75	0.76	0.93	0.797	3
4	Sharif university of technology	0.75	0.86	1	0.53	0.789	4
5	Shahrekord	0.72	0.68	1	0.83	0.786	5
6	Tabriz	0.83	0.67	0.88	0.79	0.786	6
7	Power&Water University of Technology	0.7	0.87	0.76	0.69	0.777	7
8	Babol University of Technology	0.8	0.63	0.76	0.9	0.761	8
9	Hazrate Masoumeh	0.65	0.73	0.88	0.83	0.756	9
10	Hakim Sabzevari	0.87	0.58	0.76	0.83	0.753	10
11	Arak University of Technology	0.7	0.77	0.64	0.9	0.749	11
12	Neyshabur	0.75	0.67	1	0.52	0.73	12
13	Amirkabir	0.73	0.78	0.76	0.6	0.725	13
14	Birjand	0.66	0.78	0.84	0.62	0.724	14
15	Urmia University of Technology	0.62	0.75	0.76	0.8	0.723	15
16	Tabriz Eslamic Art	0.59	0.77	0.76	0.8	0.72	16
17	Damghan	0.55	0.8	0.76	0.8	0.717	17
18	Azarbaijan Shahid Madani	0.49	0.77	1	0.69	0.716	18
19	Zabul	0.71	0.72	0.72	0.69	0.711	19
20	Semnan	0.79	0.69	0.72	0.59	0.706	20
21	Shahid Beheshti	0.89	0.79	1	0.59	0.706	20
	Weight	0.3	0.3	0.2	0.2	100	
	Average	0.72	0.74	0.82	0.73	75.14	

2. What is the ranking of the top twenty Iranian state university websites according to WAI?

According to Table 3, evaluating websites according to the five main criteria of WAI indicated that navigation and content with a score of 0.74 were in a good condition, speed (0.78) was in good a condition, and reliability (0.61) was in a good condition. And finally, accessibility with score of 0.46 was in the middle. As can be observed, none of the studied websites were in bad and very bad conditions. Iranian university websites, according to four main criteria with the mean of score 69.52 were in a good condition.

Moreover, Table 3 shows that Ferdowsi University of Mashhad with the highest points was in the top ranking, Tarbiat Modares University with a score of 85 was in the second ranking and University of Tehran with a score of 83 ranked the third. In terms of accessibility, the University of Tehran obtained 16 out of 20 scores and was in the first place and Birjand University of Technology with 3 out of 20 scores was in the final place. In terms of speed, Shahed University with 10 out of 10 scores was in the first place and Sharif University of Technology with 1 out of 10 score was in the final place. In terms of navigation, Ferdowsi University of Mashhad, Shiraz, Azarbaijan Shahid Madani University, Isfahan University of Art, Qom University, Shahed University and Power and Water University of Technology with score of 10 of 10 were in the first place and Kharazmi and Razi Universities with 4 out of 10 were in the final place. In terms of content, Azarbaijan Shahid Madani University with 49 out of 50 was in the first place and Bu Ali Sina and Allameh Tabatabai Universities with 31 out of 50 were in the final place. In terms of reliability, Islamic Mazaheb University with 10 out of 10 was in the first place and Urmia University with 2 out of 10 was in the final place.

Table 3

University websites in WAI

Rows	Name of university	Accessibility	Speed	Navigation	Content	Relaibility	WAI score	Ranking
1	Ferdowsi University of Mashhad	14	8	10	47	9	88	1
2	Tarbiat Modares	14	9	9	46	7	85	2
3	Tehran	16	9	9	43	6	83	3
4	Isfahan	13	9	8	44	6	80	4
5	Shahid Beheshti	13	9	9	44	5	80	4
6	Shiraz	13	5	10	45	7	80	4
7	Alzahra	11	8	8	43	9	79	5
8	Petroleum of Technology	10	8	9	45	7	79	5
9	Amirkabir University of Technology	13	5	9	45	7	79	5
10	Azarbaijan Shahid Madani	8	5	10	49	9	78	6
11	Power&water University of Technology	9	9	10	43	7	78	6

Rows	Name of university	Accessibility	Speed	Navigation	Content	Reliability	WAI score	Ranking
12	Sharif University of Technology	13	1	8	47	9	78	6
13	Iran University of Science & Technology	13	8	7	47	3	78	6
14	Isfahan University of Technology	14	8	8	41	6	77	7
15	Shahed	10	10	10	41	5	76	8
16	Shahrekord	10	8	8	41	9	76	8
17	Jondi shabur university of technology	6	9	8	47	6	76	8
18	Tabriz	12	9	8	37	8	74	9
19	Shahid Chamran university of Ahvaz	10	9	8	41	6	74	9
20	T.N.toosi University of Technology	12	9	8	39	6	74	9
21	Amol University of Special Modern Technologies	8	6	9	45	5	73	10
22	Imam Sadigh	13	9	5	41	5	73	10
23	Semnan	11	8	8	40	6	73	10
24	Hakim Sabzevari	7	5	7	45	7	71	11
25	Zanjan	11	7	7	42	4	71	11
26	Sisatan Va Baluchestan	11	9	5	42	4	71	11
27	Kashan	11	9	9	37	5	71	11
28	Technical and Vocational	6	9	9	40	6	70	12
29	Mohaghegh Ardabili	10	8	9	37	6	70	12
30	Malayer	8	9	7	40	6	70	12
31	Kordestan	10	5	8	42	5	70	12
32	Birjand University of Technology	5	9	9	37	9	69	13
33	Babol University of Technology	9	5	9	39	7	69	13
34	Urmia	11	9	9	37	2	68	14
35	Bu Ali Sina	12	9	8	31	8	68	14
36	Imam khomeini	11	4	7	39	7	68	14
37	Guilan	11	5	6	38	8	68	14
38	Birjand	3	9	7	41	7	67	15
39	Zabol	8	5	9	37	6	65	16
40	Bahonar kerman	11	8	5	38	3	65	16
41	Shiraz University of Technology	8	5	7	41	4	65	16
42	Golestan	11	9	6	34	5	65	16
43	Arak University of Technology	5	9	8	37	6	65	16
44	Arak	10	5	6	34	9	64	17
45	Ilam	10	8	8	32	6	64	17
46	Allameh Tabatabai	11	7	9	31	6	64	17
47	Gorgan University of Agriculture and Natural Resources	10	7	7	35	5	64	17
48	Qom	9	5	10	37	3	64	17

Rows	Name of university	Accessibility	Speed	Navigation	Content	Reliability	WAI score	Ranking
49	Ramin Agriculture and Natural Resources	5	9	6	37	7	64	17
50	Mazandaran	11	6	7	35	5	64	17
51	Bojnord	6	9	9	32	7	63	18
52	Hazrate Masoumeh	5	8	8	34	8	63	18
53	Razi	10	7	4	38	4	63	18
54	Sari University of Agriculture and Natural Resources	6	8	8	36	5	63	18
55	Velayat	5	9	9	34	6	63	18
56	Jahrom	7	5	8	38	4	62	19
57	Damghan	7	5	8	35	7	62	19
58	Urmia University of Technology	7	5	8	35	7	62	19
59	Sahand University of Technology	9	7	6	33	7	62	19
60	Economic Science	6	9	8	35	4	62	19
61	Vali Asre Rafsanjan	8	5	9	36	4	62	19
62	Kharazmi	7	7	4	35	8	61	20
63	Chabahar Marin Science and Technology	7	5	5	40	4	61	20
64	Shahrood	8	9	7	33	4	61	20
65	Isfahan Art	6	6	10	33	6	61	20
66	Tehran Art	10	10	6	33	6	61	20
67	Islamic Mazaheb	4	2	8	37	10	61	20
	Weight	20	10	10	50	10	100	
	Average	9.3	7.4	7.8	39	6.1	69.52	

3. What is the ranking of the top twenty Iranian state university websites according to webometrics?

According to Table 4, university websites were in a very good condition according to five main criteria of webometrics with a score of 93.9. Visibility with a score of 87.3 was in a very good condition. Traffic ranking with a score of 87.1 was in a very good condition. Size with a score of 85.6 was in a very good condition and PDF with a score of 85 was in a very good condition. As can be seen, none of the websites were in good, middle, bad and very bad conditions. Based on the five main webometrics criteria Iranian university websites were in a very good condition with a mean score of 88.

Also Table 4 demonstrates that Ferdowsi University of Mashhad was in the top ranking, Sharif University of Technology was in the second ranking and University of Tehran was in the third place. In terms of designing, Ferdowsi University of Mashhad was in the first place (rank=2) and Imam Sadigh University came last (rank=25). In terms of visibility, Sharif University of Technology was in the first place (rank=2), while University of Zanjan with

rank 80 was in the final place. In terms of scientific documents, Ferdowsi University of Mashhad with 4 was in the first place, while University of Kashan with 89 was in the final place. In terms of traffic University of Tehran with 2 was in the first place, while Babol University of Technology with 80 was in the final place. Finally, in terms of size Ferdowsi university of Mashhad (rank=4) was in the first place, while Allameh Tabatabai University (rank=120) was in the final place.

Table 4

University websites in webometric (Information center for science & technology (2013)¹

Rows	Name of university	Designing rank	Visibility	PDF	Traffic rank	Size rank	Webo metric ranking	Webo metric score	Ranking
1	Ferdowsi University of Mashhad	2	13	4	6	4	5	97.9	1
2	Sharif University of Technology	12	2	15	20	5	6	97.5	2
3	Tehran	3	4	8	2	7	7	97.1	3
4	Amirkabir University of Technology	15	7	12	16	31	12	95.1	4
5	Urimia	24	5	47	45	41	13	94.7	5
6	Isfahan University of Technology	15	10	20	25	12	15	93.9	6
7	Shahid Beheshti	20	28	7	21	19	17	93.1	7
8	Shiraz	6	21	37	26	11	19	92.3	8
9	Iran university of Science&Technology	23	26	17	17	14	22	91.1	9
10	Tarbiat Modares	12	31	22	13	25	24	90.3	10
11	Kashan	7	25	89	36	31	33	86.6	11
12	Isfahan	19	32	33	19	27	34	86.2	12
13	Tabriz	13	37	27	28	30	35	85.8	13
14	T. N. toosi University of Technology	13	43	21	40	68	37	85	14
15	Imam Sadigh	25	30	68	48	71	41	83.4	15
16	Babol University of Technology	12	52	36	80	74	45	81.8	16
17	Semnan	19	62	41	41	40	47	81	17
18	Allameh Tabatabai	20	50	51	44	120	56	77.4	18
19	Bu Ali Sina	18	70	54	63	40	60	75.8	19

Rows	Name of university	Designing rank	Visibility	PDF	Traffic rank	Size rank	Webo metric ranking	Webo metric score	Ranking
20	Zanjan	19	80	56	49	44	62	75	20
	Weight	5	40	30	10	15		100	
	Average	15.1	31.4	33.25	31.95	36.2	29	69.52	
	Score	93.9	87.3	86.5	87.1	85.6	88		

4. Is there any correlation between WebQEM, WAI and Webometric methods in evaluating Iranian State University websites?

WAI method has more emphasis on ranking search engines and popularity (weight 20 out of 100) and content (weight 50 out of 100) with sub-criteria of information level, scientific research level, service level, communication level and equally speed, navigation, and reliability (weight 10 out of 100); while the WebQEM method has more emphasis on usability and functionality (weight 0.3 out of 1) and equally reliability and efficiency (weight 0.2 out of 1). Speed which is the main criteria in WAI, was a sub-criteria in WebQEM. Similarly, navigation which was a main criteria in WAI was a sub-criteria in WebQEM and content which was a main criteria in WAI with maximum weight was a sub-criteria in WebQEM (weight 0.4 out of 1). Webometrics has more emphasis on visibility (weight 40 out of 100), content (weight 30 out of 100), and equally size of website (weight 15 out of 100), traffik rank (weight 10 out of 100), and designing (weight 5 out of 100). Basing on the number of users and number of visible webpages in webometrics, traffic ranking cannot be an important criterion for website popularity (Mateos et al, 2001); the most common measurement of web performance is by the number of "hits" a site generates. However, it has accuracy problems because if a page contains graphics, each graphic is counted as a new hit. Therefore, total hits measurements do not reflect the actual number of visits for the site. Because of these reasons, traffic ranking has been removed in WAI. In order to avoid this problem, a different measurement method is used which is called: the link popularity, defined as the number of external links on the web pointing to the studied website. Advantages of a large number of links to a web site are obvious: the more the sites are linked to you, the more the traffic you can expect to receive. However, the number of external links (visibility) is main criteria in webometrics. Size of websites in webometrics is as sub-criteria in WebQEM (ratio of download speed of the entire web pages to the entire size of website) and main criteria in WAI (ratio of download speed of main webpage to main size of website).

Website designing in webometric includes website content, searching and web facilities. But in WebQEM, designing includes a separate floor of the main criteria that are related to them. The sub-criteria in WebQEM and WAI are located in their special classes; But, in webometrics, a designed website has a large number of criteria that are only under the

designing website. The number of PDF in webometrics is an important factor in validation; but, in WAI, accessibility of magazines and journals is considered; because, if a website indexed in the number of PDF files, is not available to users, it has actually less accessibility.

WebQEM has four main criteria namely usability, functionality, reliability and efficiency. These main criteria have some sub-criteria. Subscription in reliability is in WebQEM and WAI. WAI has 3 main criteria that are considered as sub-criteria in WebQEM (speed, navigation and content) and the main criteria in webometrics (designing) are as sub-criteria in webQEM. Visibility which is the main criteria in webometrics is sub-criteria in WAI. Traffic which is the main criteria in webometric does not exist in WebQEM and WAI. Size of a website, navigation and search are common criteria in these three methods. Venn diagram of WebQEM, WAI and webometric are shown in figure 1.

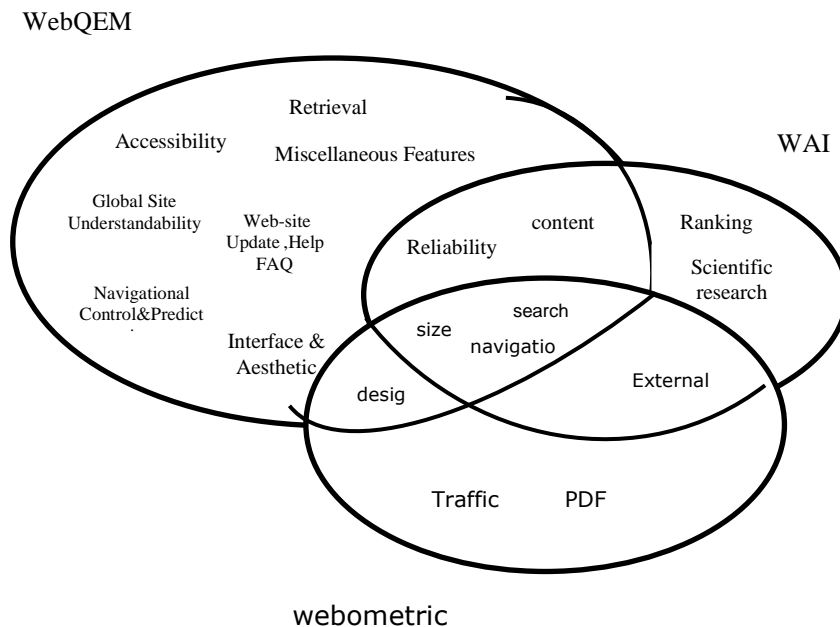


Figure 1. Venn Diagram of overlapping WebQEM, WAI and Webometric

Hypotheses

There is a correlation between Web QEM, WAI and webometrics.

The result of correlating twenty-top Iranian state university websites using WebQEM, WAI and webometrics showed that they were correlated. To test this hypothesis, Spearman rank-difference correlation coefficient was applied. There was a positive correlation between WebQEM and WAI with a score of 0.985. There was a positive correlation between WebQEM and webometrics with a score of 0.989 and there was a positive correlation between webometrics and WAI with score of 0.991. So the hypothesis was confirmed. Sperman correlation between WebQEM, WAI and webometrics is shown in table 5 and

correlation chart between Web QEM, WAI and webometric is demonstrated in figure 2.

Table 5

Spearman correlations between WebQEM, WAI and webometrics

		WebQEM	WAI	Webometric
Spearman's rho	WebQEM			
	Correlation Coefficient	1.000	.985**	.989**
	Sig. (2-tailed)	.	.000	.000
	N	21	67	20
WAI	Correlation Coefficient	.985**	1.000	.991**
	Sigh. (2-tailed)	.000	.	.000
	N	21	67	20
Webometric	Correlation Coefficient	.989**	.991**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	21	67	20

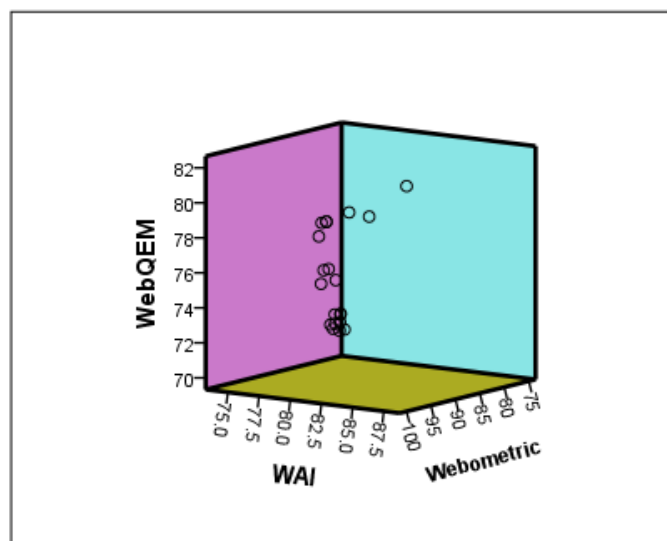


Figure 2. Correlation Chart between Web QEM, WAI and webometric

Conclusions

Following the emergence of the Internet and the web, the web has changed. The changes made in the web and web technologies, has enabled universities and training centers to provide essential information about the university, support the educational processes in unrestricted time and space. Due to advances in information and communication and emergence of new communicational and information media, university websites want to benefit from new information and communication media for their interaction.

Becuase of these reasons, websites should be assessed over time: with respect to the their

level of compatibility with technologies, accessibility, and their abilities, as well as their visibility, benefiting the digital world, ranking, achieving better quality and continuing improvement of university websites.

How to evaluate academic websites and their information is a serious issue in the educational world (Heidari, 2004). Web site quality assessment is necessary because the web is an increasingly important source of information and there is no way to control quality of published content (Vultur and Marincas, 2007).

Some of the assessment methods which are based on standards and quality models, are WebQEM, WAI and webometrics. The findings showed that twenty-top Iranian university websites which were assessed by WebQEM, WAI and webometrics with scores of 75.14, 69.52 and 88, respectively, were in "Good" and "Very Good" conditions. Ranking Iranian university websites demonstrated that Ferdowsi University of Mashhad ranked the first place in terms of the three assessment methods and other university websites had different rankings with regard to their capabilities according to the existing methods of assessment criteria, weighting and scoring. The hypotheses were confirmed and there was positive correlation between WebQEM, WAI and webometrics. Although they were unique in ranking and evaluating websites, the methods of assessment were in the same direction.

Selecting different assessment methods would lead to different rankings and selection of an appropriate assessment method would depend on recall and time, and lacked some of the useful criteria. Therefore, it is suggested to obtain a better image from assessing university websites. In order to have a comprehensive assessment of university websites without different ranking of university websites, and to achieve homogeneous assessment criteria, we can combine different website evaluation criteria (positive correlation).

The results of this research are useful for website designers to gain credibility, active presence on the web and fix their weaknesses.

Endnote

1. Retrieved on 10 January 2013, from www.RICeST.ac.ir

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