

Evaluation of the quality of the college library websites in Iranian medical Universities based on the Stover model

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ABSTRACT

Introduction: Today, the websites of college and university libraries play an important role in providing the necessary services for clients. These websites not only allow the users to access different collections of library resources, but also provide them with the necessary guidance in order to use the information. The goal of this study is the quality evaluation of the college library websites in Iranian Medical Universities based on the Stover model. **Material and Methods:** This study uses an analytical survey method and is an applied study. The data gathering tool is the standard checklist provided by Stover, which was modified by the researchers for this study. The statistical population is the college library websites of the Iranian Medical Universities (146 websites) and census method was used for investigation. The data gathering method was a direct access to each website and filling of the checklist was based on the researchers' observations. Descriptive and analytical statistics (Analysis of Variance (ANOVA)) were used for data analysis with the help of the SPSS software. **Findings:** The findings showed that in the dimension of the quality of contents, the highest average belonged to type one universities (46.2%) and the lowest average belonged to type three universities (24.8%). In the search and research capabilities, the highest average belonged to type one universities (48.2%) and the lowest average belonged to type three universities. In the dimension of facilities provided for the users, type one universities again had the highest average (37.2%), while type three universities had the lowest average (15%). In general the library websites of type one universities had the highest quality (44.2%), while type three universities had the lowest quality (21.1%). Also the library websites of the College of Rehabilitation and the College of Paramedics, of the Shiraz University of Medical Science, had the highest quality scores. **Discussion:** The results showed that there was a meaningful difference between the quality of the college library websites and the university types, resulting in college libraries of type one universities having the highest average score and the college libraries of type three universities having the lowest score.

Key words: College library, evaluation, medical universities, quality, Stover model, websites

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INTRODUCTION

Since the beginning of the 1990s, libraries started to design websites and provide services on the internet.^[1] Today the quantity of the information published on the internet, especially information present on the World Wide Web, is significantly greater than the information available on other forms of media. On account of the importance of university

libraries (both central and college libraries) in education and research and the significance of the websites of these libraries, university libraries can suitably satisfy the needs of their users by being equipped with advanced information technologies.^[1] In a traditional library, the librarians work as a medium between users and the library resources and have duties, such as, assembling, organizing, and publication of information. However in a virtual environment, the librarians try to fulfill these duties completely and keep their role as a medium between the user and the resources.^[2] Websites of university libraries not only facilitate the identification and access to the printed and digital resources, but also help educate the users in application of the acquired information. These websites also act as windows to the outside world and play an important role in providing informatics services.^[3]

The web pages of libraries have many designs and varieties, but it is necessary for these websites to follow a certain framework in their design based on their users, which increases the need for the evaluation of these websites.^[4] Ignoring the design standards and not paying attention to updating library websites can lead to problems, such as, problems in searching and indexing, disrupting communication between the users and the library, decreasing the number of library's customers,^[5] wasting the time and energy of the users,^[6] and not realizing the expected information literacy.^[7]

As college libraries and their websites play a significant role in providing the users with the necessary services, suitable methods of evaluation of these websites is of great importance. In reality the goal behind the evaluation of university library websites is to guide them toward providing the users with accurate, correct, and authentic information. In other words, the website of a library is the symbol of the library and its services that is available to the entire world, which increases the need for correct evaluation of these websites.^[3]

Findings by Farajpahlou and Saberi in, 'A survey on structural and content properties in designing of academic library websites based on users and professionals viewpoints,' showed that according to Iranian users, the design of contents is more important than the structural design properties. This study emphasized the specialized aspects of content design and the user friendly aspects of the structural design, which facilitates the users access to the contents.^[8]

The findings by Gholizadeh and Asgari in their study, 'Evaluation and comparison of central library websites of Universities of Ministry of Science, Research, and Technology,' showed that most university library websites have poor designs and it seems that the designs of these websites are not based on scientific standards. Among the 44 universities investigated in this study, only 29 universities had dedicated library websites and the others either had no library websites or had websites that were not available.^[1]

Hamdipoor conducted a study titled, 'Evaluation of library websites in Medical Universities in Iran. The findings showed

that among the investigated websites, on an average, 36% of the necessary criteria for the main page, 67% of the criteria for search and research functions, and 46% of the criteria for the facilities provided for the users were met in these libraries. Among the investigated universities, 18 of them (45%) had met more than 50% of the necessary criteria in the checklist. The results also showed that the websites of the Iranian Universities of Medical Science were weak, based on the criteria for the main page, acceptable, based on the criteria for search and research functions, and mediocre, based on the criteria for facilities provided for the users, and in general 46% of the criteria were met by the library websites.^[9]

Alibeik *et al.*, published a study called, 'Evaluation of the quality of central library websites in Medical Universities in Iran based on webqem'. Their findings showed that the investigated library websites had very desirable reliability, desirable efficiency index, and mediocre usability and operation indexes. Also half of the investigated websites (12 websites) were overall in a desirable situation, while the other half were in a mediocre state. These mediocre websites mostly had poor usability and operation indexes.^[10]

Osareh and Papi in their study titled, 'Evaluation of quality of academic library websites in Iran to offer suggestions to reform their quality, showed that audience characteristics, the website goal, stability, and upload structure had good standings, ease of search, and graphic design, the scientific background of the writers was mediocre, and updating the contents and internal links had a low score. In general the content and structure of library websites were not satisfactory.^[11]

Findings by Vara and Parto in their study, 'Evaluation of academic library websites of the Ministry of Science, Research, and Technology' showed that 59% of the library websites followed the criteria with regard to content, while 63% followed the criteria with regard to search and research facilities, and 63% met the evaluation criteria. In total only 56.6% of the libraries followed the criteria.^[4]

Alipoor and Ghaffari in a study called, 'A survey on homepages of the central libraries in Azad University. Studies on Library and formation Science,' showed that the websites have a relatively undesirable situation regarding content, search, and research facilities and facilities provided for the users. However, this study showed that public universities had a better standing compared to the Azad Universities.^[12]

A study titled, 'Evaluation of websites of the Iran academic by Rezaei Sharifabadi and Farvadi showed that 40.8% of the Criteria regarding content, search facilities and services provided for the users were met by the universities.^[13]

Alton and Chua conducted a study called, 'A study of web 2 Applications in library websites'. Their findings showed that the facilities provided by Web2 had a significant role in increasing the use of university library websites and led to the satisfaction of the users.^[14]

The results reported by Lqbal and Warraich in, 'Usability evaluation of an academic library website: A case of the University of Punjab,' showed that the investigated universities had paid more attention to the factors of effectiveness and efficiency compared to the factors of learning capability, control, and usefulness. In general, the usefulness factor of the investigated libraries did not have a desirable situation.^[15]

Aurony in a study titled 'An analysis of American academic libraries websites: 2000 – 2010,' showed that the content of university library websites had improved greatly between the years 2000 and 2010, and that the use of graphic designs in these websites had gained increased popularity.^[16]

Joo *et al.* in their study titled, 'A usability evaluation model for academic library websites: Efficiency, Effectiveness, and Learnability,' showed that it was better for the websites of university libraries to pay attention to these three factors, as these factors helped ease and quicken the access to the content.^[17]

In another study titled, 'Instruction and help services in the academic library websites and Web pages in Srilanka: A content analysis,' Wickramanayake showed that the quality of library websites and WebPages in Srilanka is based on various factors and that it is necessary to pay special attention to the content and method of access to the information.^[18]

The results of a study by Kehinde and Tella titled, 'Assessment of Nigerian University Library Websites/Web Pages' showed that web 2 tools should be used as basic criteria for the design of university library websites. Also this study pointed out that the librarians need to adapt to the new environment.^[19]

Findings by Lie and Shieh in the, 'Usability evaluation study of the university library websites,' showed that one needs to pay attention to the ease of understanding, flexibility, and content, while designing university library websites.^[20]

Mairaj in a study called, 'Use of university library websites in Pakistan: An evaluation,' showed that satisfaction regarding the quality of websites (based on content and structure) was mediocre and the users acknowledged the importance of these websites and were of the opinion that improvements were necessary.^[21]

Tripathi and Shukla conducted a study called, 'establishing content awareness evaluation criteria for library websites: A case study of Indian academic library websites'. Their findings showed that the content awareness index (collection, services, facilities, management support, and updated policies) indicated that the quantitative and qualitative characteristics of the information available on the website and the use of this index were a suitable means for evaluating the usefulness of the library contents. Also the results showed that the websites of credible national Indian institutions have a higher content awareness index compared to the central libraries of other Indian Universities.^[22]

On the basis of the findings of the previous studies, most libraries had a weak performance regarding the design and update of their websites. These websites specially had problems regarding updating their contents, ease of use, and in general, being user friendly.

Therefore, factors and features that lead to more dynamic websites and a better relation with the user needs to be used in the evaluation of these websites. Hence, the goal of this study is the evaluation of College Library Websites of the Iranian Medical Universities based on the Stover Model and it aims to offer suggestions in order to improve these websites.

MATERIALS AND METHODS

The study method is an analytical survey and applied study. The statistical population consists of college library websites of the Iranian Medical Science Universities (146 websites). The data gathering tool is the standard checklist of the Stover model localized by Hamdipoor,^[9] which has again been changed, to suit the purpose of this study. The reason for selecting the Stover model is its wide use by other studies and also the simplicity of the model and checklist. This tool consists of three dimensions. The first dimension (questions 1 to 14) covers the content of the website, while the second dimension (questions 15 to 21) covers the search and research tools of the website, and the third dimension (questions 22 to 29) covers the tools provided for the users. The validity of the tool has been confirmed by the librarianship and medical informatics experts. The data gathering method includes directly visiting the websites and entering the data using the checklist. In this study, the factors that are present in the website have been given a score of 1 and those not present have been given a score of 0. The score has then been changed on a scale of 0-100 using a suitable change of variables, which means the score of each website is a number between 0 and 100. In this study, scores higher than 50 are considered desirable. The data analysis has been carried out using the SPSS software and descriptive statistics (percent, frequency, average, and standard deviation) and analytical statistics (ANOVA) were used to evaluate the gathered data.

Findings

In this study 146 websites of various colleges of the Iranian Medical Science Universities (type one, two, and three universities) were investigated. The results were analyzed based on the universities' type.

Table 1 regarding the comparison of the quality score of college library websites of the Iranian Medical Universities based on the university type, showed that the highest score in the dimension of content quality belonged to the identifiable library title (96.7%) and the lowest score belonged to library news, date of the last update, and frequently asked questions (0%). Also, the findings showed that the highest content quality score of type one universities was for the identifiable library title (96.7%) and the lowest score of these universities was for the available survey of the site (4.9%). In type two

Table 1: Comparison of the quality score of the college library websites based on the university type in all dimensions

Factors	Type 1		Type 2		Type 3		P value
	Frequency	Percent	Frequency	Percent	Frequency	Percent	
Content quality							
Identifiable library title	59	96.7	62	88.6	11	73.3	0.006
Available photos of the library	27	44.3	27	38.6	4	26.7	0.220
Available working hours	39	63.9	30	42.9	4	26.7	0.002
History or goals of the library	29	47.5	21	30	2	13.3	0.005
Links to library services	50	82	52	74.3	12	80	0.522
Links to medical references	37	60.7	11	15.7	2	13.3	0.000
Library news	11	18	4	5.7	0	0	0.009
Presentation of library updates	20	32.8	15	21.4	1	6.7	0.024
Available list of other libraries	33	54.1	22	31.4	3	20	0.002
The date of the last update	25	41	20	28.6	0	0	0.003
Links to university's main page	53	86.9	61	87.1	9	60	0.067
Number of visitors	5	8.2	29	41.4	3	20	0.005
Available survey of the site	3	4.9	12	17.1	1	6.7	0.216
Frequently asked questions	4	6.6	0	0	0	0	0.033
Search and research							
Address and domain of the site	57	93.4	70	100	15	100	0.033
Links to address and phone number of the library	34	55.7	21	30	4	26.7	0.003
Link to the National Digital Medical Library	7	11.5	10	14.3	1	6.7	0.899
Links to other related sites	36	59	21	30	0	0	0.000
Links to electronic journals of medical science	32	52.5	10	14.3	0	0	0.000
Links to inter-library services	15	24.6	1	1.4	0	0	0.000
Links to medical databases	25	41	16	22.9	2	13.3	0.008
User services							
Available search field	23	37.7	8	11.4	0	0	0.000
Links to internet search engines	11	18	5	7.1	0	0	0.015
Appropriate and meaningful Website address	32	52.5	10	14.3	8	53.3	0.027
Available link to the homepage on every page	24	39.3	32	45.7	4	26.7	0.777
Link to library Regulations and Policies	42	68.9	38	54.3	4	26.7	0.003
Available English version	15	24.6	2	2.9	0	0	0.000
Contact to librarians using email	19	31.1	15	21.4	2	13.3	0.095
Available search manual	16	26.2	6	8.6	0	0	0.001

universities the highest content quality score belonged to the identifiable library title (88.6%) and the lowest score belonged to frequently asked questions (0%). In type three universities, the highest score belonged to the link to library services (80%) and the lowest score belonged to library news, date of the last update, and frequently asked questions (0%).

The highest score in the dimension of research and search facilities belonged to the website address and domain (100%) and the lowest score belonged to interlibrary services (0%). The findings showed that in type one universities, the highest score belonged to the website address and domain (93.4%) and the lowest score belonged to a link to the National Digital Medical Library (11.5%). The highest score in type two universities belonged to the website address and domain (100%) and the lowest score belonged to the link to interlibrary services (1.4%), and in type three universities, the highest score belonged to the website address and domain (100%) and the lowest score belonged to the link to other related sites, the link to electronic medical journals, and the link to interlibrary services (0%).

The highest score in the dimension of user services belonged to the link to library regulation and policies (68.9%) and the lowest score belonged to the available English version (0%). The highest score in type one universities was in the link to library regulation and policies (68.9%) and the lowest score was in the link to the internet search engines (18%). Also in type two universities the highest score was in the link to the library regulation and policies (54.3%) and the lowest score was in the available English version (2.9%). In type three universities the highest score belonged to a meaningful website address (53.3%) and the lowest score belonged to the available search field, link to internet search engines, available English version, and available search manual (0%).

Table 2 shows the quality score of college library websites in all dimensions based on university type and the highest average in the content quality dimension belonged to type one universities (46.2 ± 14.3) and the lowest average belonged to type three universities (24.8 ± 10.1). In the dimension of the search and research facilities, the highest average belonged to the type one universities (48.2 ± 25.9) and the lowest average

Table 2: The quality score of college library websites in all dimensions based on university type

Website quality factors	Type 1		Type 2		Type 3		P value
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	
Content quality	46.2	14.3	37.3	10.1	24.8	10.1	<0.001
Search and research facilities	48.2	25.9	30.4	17.6	20.9	9.1	<0.001
User service quality	37.2	27.8	20.7	16.1	15	11.7	<0.001
Overall quality	44.2	17.4	31.08	12.4	21.1	7.2	<0.001

belonged to type three universities (20.9 ± 9.1). Also in the dimension of user service quality, the highest score belonged to the type one universities (37.2 ± 27.8) and the lowest score belonged to type three universities (15 ± 11.7).

Comparison of the overall quality score of the college library websites showed that the highest average belonged to type one universities (44.2 ± 14.4) and the lowest score belonged to type three universities (21.1 ± 7.2). Using the analysis of variance (ANOVA) test showed that the meaningfulness level $9 P < 0.001$ was smaller than 0.05, therefore, one can say, with 95% certainty, that the quality of college libraries is significantly different based on the university type.

Ranking of the websites showed that the websites of the College of Rehabilitation of the Shiraz University of Medical Science, College of Paramedics of the Shiraz University of Medical Science, College of Dentistry of the Shiraz University of Medical Science, and the College of Nursing, Abadeh Branch of the Shiraz University of Medical Science, had the highest scores in decreasing order. Also, the library websites of the College of Health of the Qum University of Medical Science, College of Paramedics of the Ahwaz University of Medical Science, College of Nursing of the Jahrom University of Medical Science, College of Dentistry of the Ghazvin University of Medical Science, and College of Paramedics Health of the Zanjan University of Medical Science had the lowest quality scores.

DISCUSSION

Today the websites are considered to be the symbol of a library's services presented to the world, which increase the importance of the suitable evaluation of library websites. The goal of this study is the evaluation of the college library websites of the Iranian Medical Science Universities based on the Stover model. The three main factors of content, search facilities, and user services are only partially observed, which shows that not enough attention is paid to the design and updating of these websites. The total average score of these websites in all three factors is less than satisfactory (less than 50%), which shows that the condition of the college library websites of Iranian Medical Science Universities is less than acceptable.

One of the important factors in the design and update of library websites of colleges and universities is the content of these websites.^[23] Content in the Stover model consists of all the content available on the website and the accuracy and

reliability of these contents. Findings on the quality of college library websites of the Iranian Medical Science Universities based on different dimensions and university type showed that in the dimension of content quality the highest score of type one universities belonged to an identifiable library title, while the lowest score belonged to the available survey of the site. Also in type two universities, the identifiable library title had the highest score, while frequently asked questions had the lowest score. In type three universities, the highest score belonged to the links to library services and the lowest score belonged to library news, available date of the last update, and frequently asked questions (collectively). These findings are somewhat in agreement with the research findings of Hamdipoor,^[9] Vara and Parto,^[4] Farajpahlou and Saberi,^[8] Alipoor and Ghaffari,^[12] Ghiasi and Tahmasbilimoni,^[24] Sedehi and Rezaghali,^[25] Nooshinfard and Nikzad,^[26] and Liue and Shieh.^[20]

One of the other important factors in the design and update of library websites is the facility for search and research, which includes tools that enable the users to access the information, regardless of their time or place.^[4] Findings regarding the quality of college library websites of the Iranian Medical Science Universities in the dimension of search and research facilities showed that in type one universities, the address and domain of the site had the highest score, while the link to the National Digital Medical Library had the lowest score. In type two universities, the highest score belonged to the address and domain of the site and the lowest score belonged to the link to library services. Also in type three universities, the highest score belonged to the address and domain of the site, while the factors of link to related internet sites, link to electronic journals of medical science, and link to interlibrary services, collectively, had the lowest score. These findings are somewhat in agreement with the results of Hamdipoor,^[9] Osareh and Papi,^[11] Gholizadeh and Asgari,^[11] Alipoor and Ghaffari,^[12] and Liue and Shieh.^[20]

Another important factor in the design and update of library websites is the user services, which allows the users to make use of the website's facilities more efficiently and easily, thus increasing the number of users.^[4] Findings on the quality of the college library websites of the Iranian Medical Science Universities in the dimension of user services showed that in type one universities, regulation and policies had the highest score and the link to internet search engines had the lowest score. In type two universities, regulations and policies had the highest score and available English version had the lowest score. Also in type three universities the

highest score belonged to meaningful and suitable address and domain, while the lowest score belonged to the factors of the available search field in the site, link to internet search engines, available English version, and the available site manual collectively. These results conflict with the findings of Hamdipoor,^[9] who reports that the factors of suitable and meaningful address and domain and link to the main page have more than average scores, while the factors of available search fields in the site, link to internet search engines, link to library regulations and policies, and available English version had lower than average scores. However, the results are somewhat in line with the findings by Vara and Parto^[4] and Alipoor and Ghaffari.^[12]

Findings regarding the three dimensions of content quality, search and research facilities, and user services show that type one universities had better overall scores compared to type two and three universities. Also type three universities did not have a desirable situation, which was similar to the results reported by Hamdipoor,^[9] Osareh and Papi,^[11] Vara and Parto,^[4] and Alipoor and Ghaffari.^[12] The findings by Hoasing, quoted by Farajpahlou and Saberi,^[8] also state that the larger and more advanced universities pay more attention to the design and update of their library websites.

According to the results, websites of the College of Rehabilitation of the Shiraz University of Medical Science, College of Paramedics of the Shiraz University of Medical Science, College of Dentistry of the Shiraz University of Medical Science, and College of Nursing of the Abadeh Branch of the Shiraz University of Medical Science had the highest scores. On the other hand, the library websites of the College of Health of the Qum University of Medical Science, College of Paramedics of the Ahwaz University of Medical Science, College of Nursing of the Jahrom University of Medical Science, College of Dentistry of the Ghazvin University of Medical Science, and College of Paramedics and Health of the Zanjan University of Medical Science had the lowest quality scores. These results differ from the results reported by Hamdipoor^[9] in the 'Evaluation of library websites in Medical Universities in Iran,' where it was reported that the Central Library website of the Mashhad University of Medical Science had the highest quality score and the Central Library websites of Yasooj had the lowest quality score. One reason for this inconsistency could be due to the time difference between these two studies.

CONCLUSION

Today, due to the importance of information and telecommunication technologies, library websites are no longer considered an extra service and instead are tools for providing better and more widespread services. As a result, the users of a library expect all the services provided by the library to be available for access through the library's website. Therefore, due to the important educational and research roles of the university and college libraries, and their key role in the educational system, these libraries have become aware

of the importance of library websites. One of the main worries of academic librarians is the design and update of library websites, which will help the users gain access to accurate and reliable information quickly. However, without following strict quality standards one cannot reach these goals. In this study the Stover model was used to evaluate the college library websites of the Iranian Medical Science Universities.

The findings of this study showed the quality of college library websites in the three dimensions of content quality, search, and research facilities and user services, which were below average. The results show that type one universities had the highest and type three universities had the lowest quality scores. However, and despite the higher score of type one universities in all three investigated dimensions compared to type two and three universities, the desirable limit was not achieved in this study, which shows that librarians and designers of the websites of university libraries do not pay enough attention to the necessary standards, especially regarding the factors of library news, date of the last update, frequently asked questions, link to interlibrary services, and an available English version. On the other hand more attention is diverted toward the central library websites of the universities, which may be due to the relatively younger age of the college library websites in the Iranian Medical Science Universities.

SUGGESTIONS

1. Using the knowledge and experience of the designers of college library websites around the world in order to design these websites
2. Using the experience of medical librarians in the design of library websites
3. Paying more attention to content, search and research facilities, and user services in college library websites, especially in type two and three universities
4. As the results show that the quality of user services is lower than the quality of content and search and research facilities, special attention must be paid to this dimension of the website design.

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