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The assessment of Iranian academic library websites regarding the quality of dissemination of electronic information

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Abstract

The purpose of this research is to assess the quality of Iranian academic library websites pertaining to dissemination of electronic information, based on visibility, authenticity, navigation, accessibility, information dissemination, quality assessment and updateness, and consequently to rank them according to their conformity to these standards.The study is an applied research, conducted using scientometrics methodology. Research population consists of 80 central library websites of Iranian Ministry of Science, Research and Technology (MSRT) main universities. Data collection tool is a researcher-structured checklist through using descriptive statistics to analyze the findings. Reliability of research tool was calculated 0.8 using kappa coefficient, and its content validity was confirmed by five experts in the field of information and knowledge science, one computer science expert and one library website designer. In the domain of dissemination of electronic information (DEI) the average of standards of visibility (54.48 percent), authenticity (39.29 percent), navigation (68.95 percent), accessibility (46.73 percent), information dissemination (54.48 percent), quality assessment (45.16 percent) and updateness (37.5 percent) were calculated. Tehran, Ilam and Sahand Tabriz with Shahed universities were ranked as the first, the second and the third respectively, while the lowest ranks belong to Sirjan and Torbat Heydarieh universities of technology and Graduate University of Advanced Technology.

Keywords: Dissemination, Electronic information, Academic Library websites, Iran, Website assessment

Introduction

One of the unrivaled characteristics of current era is presence of knowledge and the valuable information. This is considered as an eminent factor in growth and development of every society. Transferring and disseminating of this phenomenon via modern and effective technologies would have a significant influence on accomplishing an information society (Azadi Ahmad Abadi, 2008). recognizes libraries as the core repositories of providing information and enumerates them as responsible of triad tasks i.e education, research and services for universities. Emersion of internet and global information networks leads to digital access to information resources accordingly. Conforming to the standards and guaranteeing quality is essential in designing library websites, since they are widely taken as the communication bridges between users and resources (Farajpahlu & Saberi, 2008).

On the view of this study, website quality assessment literature can be generally divided into three categories. Some assess the website quality of governmental organizations, institutes and centers. Accordingly Bowler, Hong & He examined the visibility of hyperlinks on mental health websites and found poor links of these websites to information regarding health and anger control (Bowler, Hong & He, 2011).

Wang and Vaughan examined the visibility of commercial company websites (Wang, F., & Vaughan, 2014). On the website of scientific journals in humanities, Mehdi-pour found that textual navigation bars were implemented more than the graphical ones, and pop-up windows more than that of the cascaded ones (Mehdi-pour, 2011). Ismail and Kuppusamy analyzed the homepages of 302 Indian universities using automatic accessibility evaluation tools to find accessibility report of websites and then classified them comparatively into three groups namely low accessible websites (Ismail & Kuppusamy, 2016).

Another category of these studies assess library websites from the perspective of digital services components; Vasishta [7]found the access to electronic journals on library websites of technological universities in north of India to be at a primitive and poor level (Vasishta, 2013). Khan, Idrees & Mudassir [8] in their research found 70 percent of library websites of Pakistan's top universities accessible via World Wide Web Consortium standards (Khan, Idrees & Mudassir, 2015).

Pinto, Quesada and Granell [9] examined part of library websites of Spain universities in which European institutes of higher education are introduced, and found the degree of conformity of existing condition to the standards of visibility, authenticity, navigation, accessibility, information dissemination, quality assessment and updatedness between 13 to 79 percent (Pinto, Quesada and Granell, 2014).

Velasquez & Evans [10] conducted a multicountry quantitative evaluation on public library Websites as electronic branches. They used a spreadsheet protocol to determine if 18 criteria were present on the Websites. In this study many similarities were found between the accessibility of the Websites of the different countries. They also provided examples which can be used to model ideal electronic branch libraries for library staff to improve their Websites (Velasquez & Evans, 2018). Haneefa & Jiji [11]analyzed the contents and interactivity of 99 national library websites around the world. They showed that the websites had almost identical pattern of contents and interactivity. Majority of the websites used interactive applications (Haneefa & Jiji, 2019).

Researches within the third category examine performance quality of academic library websites according to more diffused characteristics; Varaa and Hayati [12]

found the updating performance of Iranian academic libraries rather poor (Varaa and Hayati, 2007).

Fadaie Araghi and Sabzipure [13] estimated navigation services of Tehran's academic library websites to be 90 percent and the rate of links to electronic journals and databases at an excellent performance level of 90 percent (Fadaie Araghi and Sabzipure, 2008). Shaabani and Asgari [14] surveyed library websites of state universities of Iran's central area and found navigation services at 79 percent and link to electronic resources at 63 percent. The emergence 0f accomplished research has given rise to the significance of website designing and ways of accessing web resources (Shaabani and Asgari, 2012). Nasajpour, Ashrafi-rizi, Soleymani, Shahrzadi, and Hassanzadeh [15] evaluated the quality of the college library websites in Iranian medical Universities based on the Stover model. The findings showed that in the dimension of the quality of contents and search and research capabilities the highest average belonged to rank one universities and the lowest average belonged to rank three universities (Nasajpour, Ashrafi-rizi, Soleymani, Shahrzadi, & Hassanzadeh, 2014). Mierzecka and Suminas [16] tried to find out the basic functions of academic library websites which were viewed as the most important by the students in Poland and Lithuania. Accordingly they distinguished five functions of the academic library website including supporting the usage of the collection (online and traditional); promotion of culture; gateway for locating information on the Web; education; creation of library's online image. As part of their nature and goals, academic library websites carry a significant responsibility regarding the DEI but, looking further into previous researches on examining academic library websites, we come to realize that the vast majority of those studies have taken such websites into account and no research contributing specifically to examining the dissemination of electronic information in academic library websites or suchlike was found (Mierzecka and Suminas, 2016). Whereas the most fundamental service of an academic library website is dissemination of electronic information; this research aims at clarifying how and to what extent the dissemination of electronic information in this area is carried out. Is this area easily accessible and visible for the users, specially the beginners? Have the regional and international standards been observed while designing this part of the library websites? Is the information content of this area of websites up to date and being updated regularly? This study aims to identify current situation based on the problem under discussion.

Methodology

This applied study has been carried out using scientometrics methodology. Research population consists of 80 central library websites of the universities affiliated to MSRT up to 2018. Data collection tool was a researcher-structured checklist which has been adapted, localized and restructured Pinto et al's [9] checklist (Pinto et al's, 2014). For restructuring the tool Library websites of world's credible universities

including Harvard, Cambridge and Chicago universities, as well as national libraries such as Library of Congress, and the domain of DEI on a professional level of websites including Science Direct were examined and modeled.

The reliability of research tool was estimated 80 percent using kappa formula which shows a high consistency between assessors. Formal validity of the checklist was approved by 5 experts in the field of information and knowledge science, 1 computer science expert and 1 library website designing expert. Descriptive statistics is used to analyze the data and the state of each standard is assessed based on Likert 5-point scale. Seven variables(standards) were examined (Fig.1).

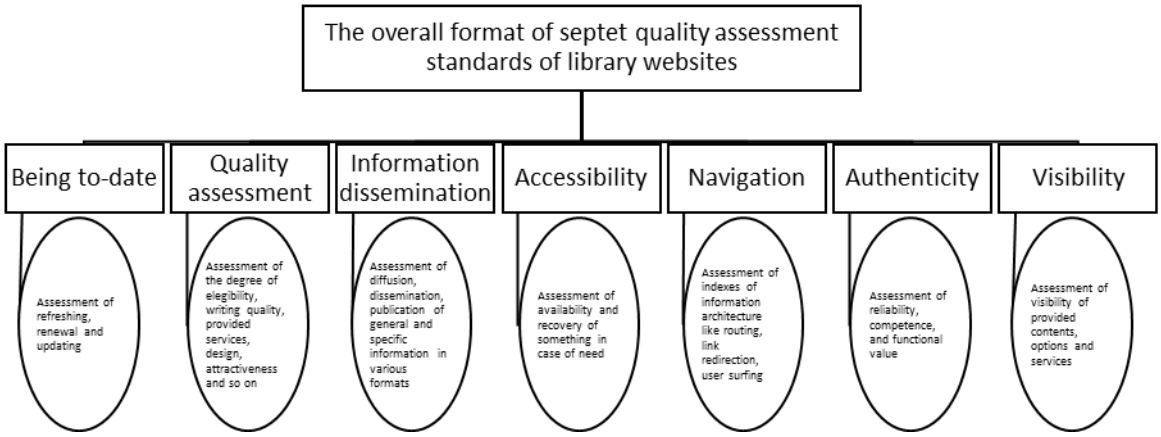

Figure 1. Septet standards and total assessment variables

Findings

The conformity degree of dissemination of electronic information with visibility is on average 54.48 percent. Academic library websites have an excellent performance in dividing information resource types and scientific and non-scientific content distinction.

The conformity degree of DEI domain to indexes of authenticity is on average 39.29 percent. University and library name and logo and articles' DOI serial code have been presented at an excellent level. On the other hand, citing authors' credentials and stating intellectual property and scientific-organizational affiliation were at a very poor level.

The conformity degree of domain of DEI to indexes of navigation is on average 68.95 percent. The performance of domain of DEI in factors such as navigation option (e.g.

going back and forth through pages), identification of links by underlining them or using a particular fill color, term integrity or match through different pages, appropriateness between links and their target location, preventing from redirection to irrelevant content via external links and inserting the URL of each page in address bar were at an excellent level, while using embedded textual bars for linking to the homepage of DEI domain and library website, using main menu of the library website throughout the pages of observed domain were at a good level.

The conformity of the domain under consideration to indexes of accessibility is on average 46.73 percent. Applying indexes such as using PDF to save and retrieve dissemination of electronic information are at an excellent level. Presenting the information of the website in more than one language, possibility of contacting the authorities of dissemination of information area via live chat and messaging were at an acceptable level. However, in indexes such as citing the name of the required browser, option to save and retrieve specialized information in HTML, Word and PowerPoint formats, possibility of contacting the authorities of dissemination of electronic information area of scientific-specialized information on social networks, virtual desk services and likewise, option to view guidelines were at a very poor level of performance.

The compatibility degree of DEI domain to indexes of dissemination of information is on average 35.39 percent. Presentation of the latest resources of the library, news archive and RSS feed and use of multimedia tutorial software were at good and acceptable level. Whereas providing a list of services related to DEI and categorizing them by user groups, a list of special services, online virtual visit of the related section to the intended domain within library, notification about educational workshops, consideration of providing files related to this kind of meetings or online attendance through video conference, use of document delivery services, ongoing notification services and selected information dissemination services, dissemination of general and specific reference resources were at a very poor level.

The conformity degree of DEI domain to indexes of quality assessment was on average 45.16 percent. Existence of a virus scanner or firewall for library website,

preventing irrelevant GIF pictures and possibility of remote renewal of documents via computer network were at an excellent level while alternatives for using files requiring particular software, policy regarding DEI, personalization of this domain or providing personal library, possibility of renewing documents remotely via SMS and providing a mobile phone application for the library software were at a poor level.

The compatibility degree of the domain under consideration to indexes of updateness is on average 37.5 percent. The state of updating dissemination of electronic information resources and browsers required for retrieval are at good and excellent levels.

Table 1. The rank of the university central libraries affiliated to MSRT

Rank	University	Septet standards														Total observed indicators		Status
		Number and percentage of septet standards																
		Visibility 27		Authenticity 16		Navigation 19		Accessibility 27		Dissemination 44		Quality 15		Up-to-date 15				
		Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	
1	Tehran	85	23	81	13	95	18	85	23	79	35	80	12	66	10	134	82	Excellent
2	Ilam	88	24	81	13	74	14	78	21	59	26	73	11	66	10	119	73	Good
3	Sahand Tabriz	81	22	69	11	84	16	70	19	63	28	80	12	60	9	117	72	Good
4	Shahed	81	22	75	12	84	16	74	20	59	26	73	11	66	10	117	72	Good
⋮	⋮																	
77	Hazrat-e Narjes	26	9	56	9	50	10	46	13	14	6	33	5	46	7	59	36	Poor
78	Sirjan Technology	29	10	44	7	50	10	43	12	25	11	20	3	33	5	58	35.58	Poor
79	Torbat Heydarieh	31	11	31	5	45	9	37	10	25	11	26	4	26	4	54	33.12	Poor
80	G.U.A.T[1]	26	9	31	5	37	7	37	10	14	6	13	2	26	4	43	26	Poor

[1] Graduate University of Advanced Technology

Tehran University with a total of 134 scores has the highest rank and the lowest rank goes to the Graduate University of Advanced Technology, gaining only a sum of 43 scores (Table 2).

Discussion and conclusion

Consideration of key elements including website map, search engine and technical details about the format of digital resources, and relevance between chapters and sections were among the important facets not being given enough attention. A few numbers of websites have provided access to the intended dissemination area in the pages of library website or cascading and pop-up. In such circumstances, finding the dissemination area requires more time and navigation effort within the main page or pages of the library website from the users' side. Half of the websites have provided this access in the top, or right corner, left and bottom of the library website's homepage which is of more relative value in ease of access. A fewer number of websites have provided access to this domain in the homepage of the library website, based on website designing rules. It seems that the lack of enough attention toward how library website users are to find and access their intended domain results form lack of awareness and attention toward the significance of this section by website designers. Hence, website designers are suggested to, firstly, label the access or link to this area with special strategies (using a term or expression which clearly indicates this area), secondly, locate the label as far as possible in an appropriate spot on the homepage, and thirdly, implement different graphical tricks such as blinking lights or advertising banners with proper color profiles to draw users' attention. Using multimedia guides enhances the capability of guides in addressing questions from beginner to advanced users. Text guides usually confuse and exhaust the user, while graphical and multimedia guides help the user step by step. Rare implementation of full-text search engines indicates less attention to the significance of this kind of search engine among website designers and administrators. The results of current research support the results of visibility in Wang and Waughan's [4] in this regard. Findings of Bowler, Hon & He [3] differ from

the results of current research while the results of Pinto et al [9] match (Wang & Vaughan, 2014, Bowler, Hon & He, 2011, Pinto et al, 2014).

Implementation of embedded interactive navigation bars increases understanding, speed and simplicity of navigation in the websites. The frequency of embedded textual navigation bars for linking to the homepage of the assessed area is more than the graphical ones, while graphical symbols are more attractive than textual ones and transfer the functional concept faster. It seems that the vast majority of these kinds of website designers have neglected this option. Hence, to avoid waste of users' time and to satisfy them, it is suggested that the factor in question be improved using animating techniques in this regard. The navigation results of the current research accord with Shaabani & Asgari's [14] (Shaabani & Asgari, 2012).

Providing various formats for saving and retrieving dissemination of electronic information, enhances the accessibility of resources. Libraries, hence, should provide such formats within storage and retrieval environment, which propose more retrieval options comparing to the old versions. Option to view the information on website in more than one language is crucial to enhancing the accessibility and is considered one of the fundamental requirements in this area, since various users with different languages around the world might be redirected to the library website during their visits. Ease of access to *help* options causes users to take advantage of them and tackles probable issues and questions, preventing users from ignoring the website due to lack of instrumental realization of the website. The designers of such websites are probably not fully aware of the significance and usefulness of these options.

Consideration of indexes such as the latest of the library, news and suchlike within the intended area helps users to easily intake content on different occasions. The possibility of online virtual attendance to seminars and suchlike, as in video conference, resolves situational limitations. Welcoming functional indexes such as supporting education, holding online educational courses without the need of physical presence and providing access to various types of scientific reports helps librarians to accomplish their responsibilities. Academic library websites which, in

some universities, provide instructional content in various scientific fields virtually are recommended to pay special attention to indexes of DEI. It was observed that more attention was paid to regarding document delivery services than ongoing notification and selected dissemination of information services within the researched area. It seems that outdated knowledge of website designers in this field or its costly nature for the library have caused document delivery services to be more welcomed than other information services.

Within updating area, it seems that, given annual subscription policies of databases, libraries must benefit from the latest content of journals, articles and, as a result, the latest scientific advances. Some of the time-sensitive information contents including new additions to the library, due dates of courses, conferences and suchlike are crucially required to be up to date. Constant changes to the URL, development of news and fresh resources, providence of new options and services in library website, enhancing UI quality and suchlike would bring about the need to update website pages for enhancing the attractiveness and users' satisfaction. It seems that high costs of updating as well as low budget allocation to libraries are the main reasons behind shortage of periodical annual structure and layout updating. Meanwhile existence of the latest versions of browsers brings more features compared to the old ones, so it has received enough attention. The updating results in current research accord with Varaa & Hayati [12] and Payne and Thelwall [17] on the poor state of websites updating activities (Varaa & Hayati, 2007, Payne and Thelwall, 2008). And finally, library websites did not have such a successful performance in providing remote services to access to up-to-date information and librarians have hugely neglected world's latest technologies and modern services of virtual world, paid less attention to them along with their organizational responsibilities and mostly provided traditional library services on their websites.

Recommendations:

- Dedicating digital DOI to various carriers of the library as well as citing intellectual property right and scientific-organizational affiliation of the authors of scientific-disciplinary resources to increase authenticity and validity.

- Improving ways of contacting library authorities specially in dissemination area of dissemination of electronic information.
- Notification of various services of the researched area followed by updating this information.
- Holding workshops and seminar for both librarians and users, possibility of virtual attendance to these meetings or accessing their files.
- Dissemination of scientific-disciplinary information in the form of newsletters through email or other online communication tools.
- Classification of secondary areas and logical categorization of pages related to dissemination of electronic information coherently in one environment and access to this area on the most appropriate section of library website homepage.
- Presenting a map along with links to internal content focused on researched area and enhancing the strength of internal search engine.

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