

Assessment of Search Features and Their Consequences on Iranian Digital Libraries

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Abstract. This study which was carried out to assess the search features and their consequences on Iranian digital libraries, examined 32 search features and 29 display features in 8 Iranian digital libraries (which include Deed, University of Science and Technology, Pars Azarakhsh, Noor, Astan-e Qods-e Razavi, Tebian, National Library, and Alal-Bait). Results revealed that as far as search and display features are concerned, Pars Azarakhsh, Astan-e Qods-e Razavi, and National Library were respectively the first to third qualified digital libraries; and Alal-Bait digital library was the least.

Keyword: Digital library, Search feature, Display feature, Iranian Libraries

1. Introduction

Human-computer interaction is a branch of knowledge which deals with computer designation, assessment, and performance for human usage and the study of the phenomena around it. The main aim of this knowledge is to develop the interaction between computers and their users by means of producing more suitable and practical computers which are in compliance with users' needs. One of the issues in the field of interaction between human and computer is the assessment strategies and the comparison between interfaces. Interfaces may be said to act as a medium between the users and the databases, and in order to achieve this, there needs to be a good understanding of the ultimate system users' needs. It's a general fact that interface is a determining interaction between the users, so it seems that like any other interface, this one also should be continuously assessed so as to make a clear understanding of its weak and strong aspects. Just like any other information system, the goal of a digital library is to make the information accessible to its users; so there needs to be a great attention to search and information retrieval mechanisms. Nowadays, the issue of search and information retrieval has become one of the greatest parts of digital libraries. In fact, until a user is not able to get her/his exact response or information from a digital library, she/he would never be satisfied with such a system. So the issue of search and information retrieval, and all the facilities that are being added to it, is developing rapidly. The production of specialized dictionaries, the issue of data searching, a change in search methods, conceptual searches, changes in the process of showing results, etc, are all evidence of the fact that search and information retrieval are more than just mere instruments and have become a branch of knowledge. Basically, these play an important role in management of information.

Identifying weak points and challenges regarding the relationship with digital libraries, will lead the parties involved, including users, librarians, computer experts, and even cognitive psychologists, to find a solution to this problem. This will encourage them to try their best and design new methods which are more effective and practical.

Novelty of digital libraries and their rapid growth have caused so many researchers to study the field. As Jeng (2005) mentioned, however, attention toward criteria for assessment of digital libraries, and particularly

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toward their users has been low. So there seemed to be lack of studies in the field, especially in Iran; and this has caused the authors of the present article to assess search features and their consequences on digital libraries in Iran. Fundamental questions of this study are as follows:

- Which digital library has the most search features?
- What are the search features which are common among most digital libraries?
- Which digital library has the most display features?
- What are the display features which are in common among most digital libraries?

2. Literature Review

Nowadays, discussions on digital libraries have become one of the most important parts of the fields such as librarianship, information technology, and computer sciences. There has not been much study being done on the field of the present study, so we may just mention those studies which have a close attitude towards the subject.

Smith (2000) has studied the characteristics of digital libraries and suggests that digital libraries must have a wide spectrum of search features, including Boolean search, Proximity search, Truncation search, etc. he chose 11 digital libraries and compared their search features. His findings revealed that digital libraries in that stage, mostly did not acquire the search features needed. For example, less than half of the libraries investigated had the ability of vocabulary control; less than half of the foregoing libraries had proximity searching capacity; only one library was capable of browsing keyword index; and none of them would let the searcher refine his first search.

Also, Andrew Chulk and colleagues (2003) examined three journal databases according to three general characteristics including interface, content, and cost in order to determine the preferences of these databases for academic and public libraries. Components such as usability, search capabilities, quality of database help from interface; components such as scope, currency, comprehensibility, accuracy and consistency, citations and abstracts of database from content, were examined.

In a comparative study which was done by Vilar and Zumer (2005) to determine the strengths and weaknesses of four electronic full-text databases offering web-based journals, components of user friendliness including the vocabulary and type of the interface, navigating and personalizing the display screen, and features of efficiency consisting of choosing the database, search formulation, result processing, and help options were all examined. Findings revealed that despite the similarities between the four databases examined, there were also differences. Much of the differences were seen in search formulation, and vocabulary and type of user interface.

Su (2005) has investigated desirable search features of web-based scholarly e-book systems. He considered two general usual search and browse possibility, to be the as desirable features of e-books.

Nabavi (2006) studied search features in 14 digital libraries (10 digital libraries outside Iran, and 4 inside) using a check list. The results of this study showed that these digital libraries did not act the same in providing their users with different search facilities so that some digital libraries such as American Memory and ECM provided 8 out of 9 search features which were considered in this study, guiding the users more efficiently to access their intended sources. But Classic Articles digital library did not provide its users with any of search features, and therefore was considered to occupy the least position in the assessment list.

In another study Alijani and Dehghani (2006) compared and examined free versions of Eric and Search Eric with commercial versions of Ebsco and FirstSearch, from ERIC. A check list consisting of five items of general information, search features, display options, retrieval options, and unique features, was used to assess the databases in this study. Findings showed that considering the five mentioned items, versions of Ebsco, FirstSearch, Search Eric, and Eric respectively had the most features.

Alijani and Dehghani (2007) investigated the free versions of four databases called Ebrary, Net Library, Questia, and Safari, using a check list consisting of 5 categories which were as follow: general information, search features, display options, storage and retrieval options, unique features. The findings revealed that Net Library and Questia were at first place by 40 scores, and Safari with 36 scores and Ebrary with 35 scores were at second and third.

Mehrad and Zahedi (2007) studied the user interfaces of two Iranian hosts (Regional Information Center for Science and Technology and Research Center of scientific Information and Documents of Iran (IranDoc)) and 4 foreign hosts (Proquest, Emerald, Elsevier, and Ebsco) providing databases. They tried to compare the user interfaces of these hosts using a comprehensive check list which consisted of five parts as follow: general

features, search, retrieval, display and user friendliness characteristics. Findings revealed that between Iranian hosts, were respectively Regional Information Center for Science and Technology and IranDoc, and among foreign hosts Ebsco, Emerald, Proquest, and Elsevier, respectively had the most characteristics from the five features mentioned above.

This overview shows none of these digital libraries were investigated up to now from this point of view. As the mentioned digital libraries are among the first experiences of Iranian in digital libraries, it is necessary to know their overall conditions. Meanwhile most of the studies have examined some determined features in digital libraries and databases. This study aims to study the two common features, search and display, which are most important in the users' eyes.

3 Methods

The Population of this evaluative research covered 8 digital libraries, including Deed, University of Science and Technology (UST), Pars Azarakhsh (PAZ), Noor, Astan-e Qods-e Razavi (AQR), Tebian, National Library of Iran (NL), and Al al-Bait). The data were gathered by a check list which is made by examining most of the check lists available in the literature and attempts were done to have a comprehensive check list in the two features. To gather the data, each digital library features was compared with the check list prepared. If a digital library possessed each of the intended search and display features, it would be scored with 1, and if not would be scored with 0. At the end the scores gained by each considered digital library were summed.

4 Findings

4.1. Which digital library has the most features?

The findings showed that Pars Azarakhsh digital library with 31 (%97) out of 32 scores of this part, Astan-e Ghods-e Razavi with 24 (%75), and National Library of Iran and Deed, both with 20 scores (%62.5) were ranked respectively first to third; and Al al-Bait had the least features with only 6 scores (%18.75). Relational, synonyms, fuzzy and conceptual search features can be considered as the strong aspects of a digital library such as Pars Azarakhsh. These features were not observed in any other digital library considered. Proximity search feature existed only in Astan-e Ghods-e Razavi, and stemming search existed both in Pars Azarakhsh and National Library of Iran. Unique features of Pars Azarakhsh have made a huge gap between itself and other digital libraries such as Astan-e Ghods-e Razavi which occupied the second place in the list.

The results of the study by Alijani and Dehghani (2007) showed that the search capabilities in Netlibrary (83/33 %), Questia (72/22%), Ebrary (66/66%), and Safari (61/11%) were compatible with these study ones. In other words, digital libraries possess better search features in comparison with international book-oriented databases.

The investigation of search features of databases such as SID, Magiran, and Namamatn, showed that these journal databases did not acquire the features mentioned in the check list, thus their design in this part was weak (Assadallahi, 2009). Such results revealed the fact that digital libraries in Iran possessed more strong aspects over Persian journal databases, and it seems that digital libraries have functioned well in search section in Iran.

4.2. What are the search features that are common among most digital libraries?

Simple search, field search (title, author), and limiting (bibliographical information) characteristics were the features that seemed to be common among all the chosen libraries with the most scores (8). But proximity, relational, conceptual, synonyms, and fuzzy searching were the least in this list with the lowest score (1). Results of the study by Assadallahi and Nowkarizi (2010), Othaman and Halim (2004), and Direcks (2003) showed that Boolean, circular, and truncation search features were features that seemed common in databases. Some parts of this study comply with the mentioned studies, since field search feature was a common feature in all digital libraries.

4.3. Which digital library has the most results display features?

As it is shown in table 2, Pars Azarakhsh with 25 scores (%86.2), Astan-e Ghods-e Razavi with 18 scores (%62.06), and national library with 17 scores (%56.62), out of 29 scores of this section, were gained respectively first to third ranks; and Al al-bait was the least with only 2 scores (%6.89). Search result display qualifications such as clustering and possibility of refining previous search results were unique features of Pars Azarakhsh

digital library. Display capability of ISO conversion results was particular to Pars Azarakhsh and Astan-e Ghods-e Razavi. Displaying new items in the beginning of the result list in Deed and National Library of Iran; and displaying item cover in Noor and National Library of Iran were observed.

Alijani and Dehghani's (2007) study on display features in user interfaces of international databases such as Ebrary and Netlibray (with 90%), Questia (with 80%), and Safari (with 70%) revealed that these features in printed book-oriented databases have been paid more attention over the digital libraries. Assadollahi and Nowkarizi (2010) in their study, showed that display features in journal databases such as Magiran and SID were more important than in Namamatn. Namamatn lacked 60% of the mentioned features in her study. So it seems that digital libraries have done better than journal databases in Iran in designing their display features.

4.4. What are the searches results display features which are common among the digital libraries investigated?

The most search results display features in these libraries were as follows: Displaying brief records with 8 scores, viewing the full information of documents with 7 scores, and main entries hyperlink feature with 6 scores. Features that seemed to appear less in these digital libraries, were possibility of refining pervious searches and clustering with 1 score.

5. Discussion and conclusion

Assessment is a crucial part to solve the information systems' problems, since it can provide analysis and identification of system features, and also highlight their weak and strong aspects. The progresses and changes which have turned digital libraries into a new generation require the assessment of search and display features. That is because search and retrieval features of any digital library should meet the needs of all of its users, i.e. both inexperienced and experienced users should get what they want using these search features. Also these libraries should provide various search facilities to let more expert users do deferent kinds of search (Smith, 2000).

Findings revealed that investigated digital libraries do not cover all the search features. However, Pars Azarakhsh, Astan-e Ghods-e Razavi, and national library of Iran have the most search and display features. These libraries have tried to provide as much features as possible for any of their users whatever their degree, using the experiences of expert librarians and library softwares.

For those digital libraries which don't have the criteria mentioned in the check list, it is suggested to take these criteria into consideration and strengthen their search features; since nothing is more important to search features than these criteria. Weak search features will affects content of a library and will make it rather impractical. According to the findings of the study, it is suggested that libraries use a definite and standard design for their search and display features to save money, time, and work force. It is also suggested that these libraries identify their weak points according to the results of this study, and improve their condition regarding the needs of their users.

In order to improve the quality of search and display features, it is better for libraries to use a group consisting of digital library design experts and also experts in library and information science. In this way, not only the structural and technical issues are considered, but also content features which derive from specific services in information and library technology will be paid attention.

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