

Development of a User-Centered Digital Library for Ottoman Manuscripts

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Abstract

This research aims to study the effectiveness of Total Quality Management (TQM) principles, especially a user-centered design for a digital library of Ottoman manuscripts. In this study, the requirements for achieving a user-centered digital library by means of multilingual and multicultural web interfaces and information services are examined.

Keywords: Cultural heritage; Ottoman manuscripts; Digitisation; User-centered digital library services; multicultural digital library services; Total Quality Management

1. Introduction

With the proliferation of the Internet and World Wide Web applications, users are increasingly interfacing and interacting with Web-based applications. Over half a billion people worldwide now have Internet access, according to new research from Nielsen-Netratings. The research company's latest study indicates that 580 million people have Net access, compared to 563 million in the third quarter of 2002 (NUA..., 2003).

The storage of digitised documents in the open Internet environment is an important mechanism for allowing valuable and rare documents to be accessed easily by a large number of geographically distributed users. Currently, many of these documents are physically stored in secure archives and are accessible in a very restricted way to a handful of experts only (Aytac, 2002).

This is especially true of Ottoman manuscripts at present. A very large number of these represent the historical records of some 700 years of Ottoman history. They often include many unique and beautiful bindings, gold gilded and miniature illuminations relating to laws in the Ottoman time, Ottoman foreign policy, the sciences and medicine, literature and culture among others. The manuscripts also display a number of calligraphic styles. Written in Ottoman Turkish, Arabic and Farsi, they form an invaluable archive demonstrating the multilingual and multicultural diversity of this period (Kucuk, 1995).

Ottoman manuscripts that are currently held by Turkish institutions are physically distributed in about 110 libraries and museums in Turkey: the Suleymaniye Library in Istanbul has some 120,000 of these manuscripts alone (Türkiye..., 1995). Many are also held in private collections making them to all practical purposes inaccessible to the wider community. Some are held by government organizations and have been cataloged in paper form, but most are not held in any digitized form (The manuscripts..., 1987). Moreover, large numbers are widely dispersed in other countries and not easily accessible to experts in this area.

This research aims to study the effectiveness of Total Quality Management (TQM) principles, especially a user-centered design for a digital library of Ottoman manuscripts. In

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this study, we would like to focus on requirements for achieving a user-centered digital library by means of multilingual and multicultural web interfaces and information services.

2. The Important Characteristics of Digital Library Services

Digital libraries provide new possibilities and paradigms for knowledge dissemination, collaborative learning, and social services. The proliferation of digital libraries has led to the development of a wide variety of digital library collections and services. There is a great diversity of digital library projects in different parts of the world. Digital library services give users online information and transactional services through the Internet. Users can easily interact with digital library services, including e-mail, voice mail, real time chat, etc from remote locations. Digital libraries hold the promise of facilitating change in scholarly communication and research.

Digital libraries cater for the critical importance of time and facilitate the satisfaction of the user's need in real time. Digital library collections are not limited to document surrogates: they extend to digital artifacts that cannot be represented or distributed in printed formats. Access is the primary benefit that will accrue from the development of a digital library of Ottoman manuscripts that could be shared by variety of users. These users will not only include researchers and experts in Ottoman history but also individuals with general and aesthetic interests in the physical objects themselves. A digital library for Ottoman manuscripts would contribute to the improvement of studies in Ottoman history, literature and linguistics, that are important for cultural and genealogical studies. Ensuring the longevity of the Ottoman cultural heritage has, hence, become a new dimension (Aytac, 2002).

Important different characteristics of digital library services, when compared with traditional library services, are better availability and reliability, better security and a more diversified customer base. Better availability implies 24/7 availability, perhaps with an availability in the order of 99.999%. There should have been no speed problems, and the digital library IT structure should be sufficiently sophisticated (Doll, 1988). Services must be much more reliable in terms of their functions. Security is more important since almost all service functions will be available through the open medium of the Internet. Users are more diversified and have widely varying skills in using digital library services compared to the users of traditional library systems. These different characteristics make the creation and maintenance of digital library services more difficult than traditional library systems: therefore stricter TQM measures need to be applied to achieve them in user-centered digital library services of Ottoman manuscripts.

An effective digital library initiative in this area should be based on the expectations of the multicultural and multilingual users of Ottoman Manuscripts. The digital Library should adhere to strict quality control principles, including enhanced availability and reliability, better security, and more diversified user-centered services. These imperatives make the creation and maintenance of a digital library service more complex than a classical library system. Strict quality control measures need to be applied to achieve them. To develop a user-centered digital library for Ottoman manuscripts, one must focus on user expectations and needs in order to work backwards towards the creation of a viable user interface.

3. Total Quality Management (TQM) and Continuous Quality Improvement (CQI)

Total Quality Management (TQM) is a set of tools and processes whose output yields customer (user) satisfaction and continuous improvements. Simply defined, TQM is a system of continuous improvement centered on the needs of customers (users). TQM is essentially a

means of getting close to customers (users), identifying what they want and providing it. The key components of TQM include CQI, customer (user) satisfaction, the use of problem solving teams, statistical methods, and long term goals and thinking (Hradesky, 1995; Zultner, 1993).

Quality is often an elusive concept and it is difficult to define and measure, especially when the service is intangible and abstract. The quality of digital library services for Ottoman manuscripts can be measured in various ways: these include user satisfaction, service availability 24/7, information reliability, information system security, and user-centered interfaces. Quality concepts, methods, and tools such as process flow charts, fishbone diagrams, pareto analysis, control charts, and checksheets provide a basis for improvements to the digital library services of Ottoman manuscripts.(Guy, 1997; Stylianou, 1997)

Information systems researchers have attempted to define some dimensions of web quality such as specific content, content quality, appearance and technical adequacy (Aladwani, 2002). We would like to focus on the multicultural dimensions of web quality which were covered by the Information system researchers for user-centered digital libraries of Ottoman manuscripts in this study.

4. TQM in User-centered Digital Library Services of Ottoman Manuscripts

The aim of a user centered service is to create computer applications that will make users more efficient than they would be if they performed their tasks with an equivalent manual system. Our aim in digital library services for Ottoman manuscripts has to be knowing the user, understanding the tasks the user is trying to perform and creating better information systems for them. The interface of any digital library must be easy to use and understand. Ease of use is one of the most important components of user satisfaction (Doll, 1988).

Digital library services of Ottoman manuscripts have to identify the user's preferences and adapt their services to meet the user's specific requirements. These include providing users with the right service, and creating web pages to meet the needs of users visiting the site, based on an understanding of his or her personal situation and needs.

Effective digital library services initiatives must be aimed at developing the user-centered digital library, especially multilingual interfaces and multicultural (Robbins, 2003) web designs for the users.

User satisfaction is a key to quality in digital library services. TQM at all levels of the digital library services can lead to better service. Providing services according to its specific range of user types should be the driving factor in developing CQI strategies in user-centered digital library services for Ottoman manuscripts. Its success enhances user satisfaction by delivering quality services focused on their current and future needs (Stylianou, 2000).

5. The Importance of a Multilingual and Multicultural Approach to Development of a User-centered Digital Library for Ottoman Manuscripts

The user interface is the most important component of a successful digital library. User interfaces have to be improved and designed according to the needs of user requirements (Meyyapan, 2001). Additionally, the needs of the same user can also change over time. This means that a digital library for Ottoman manuscripts should continuously focus on user expectations and needs. The core issue in developing multicultural web sites is ultimately cross-cultural communication. The World Wide Web now affords communication possibilities above and beyond geographical boundaries and has itself erected walls between communities. Multiculturally developed web interfaces will undoubtedly aid cross cultural

communication on the web (Chu, 1999; Robbins, 2003). Therefore, in the case of Ottoman manuscripts digital library interfaces should be developed multiculturally.

Cultures, even in a single country, can be very different. Sacred colors in the Judeo-Christian West (e.g. red, blue, white, gold) are different from Buddhist saffron yellow or Islamic green. These differences go deeper than mere appearance; they reflect strong cultural values (Marcus, 2000). The development of interfaces for a user-centered digital library of Ottoman manuscripts should pay attention to understanding its multicultural users. We need to develop multiple versions of such a digital library in a user-centered manner.

The use of language is the most important element of a culture. Today multilingual web browsers are commercially available, but these are mostly European-based corporate sites (Cunliffe, 2002). When we check out the web sites of the Fortune 500 companies only one language can be found: English. Multinational companies are ignoring the possibilities of reaching people who speak languages other than English who have access to the Internet (Dempsey, 1999) as well as a lot of international institutions and organizations.

There are between 3,000 and 4,000 speech communities throughout the world. The following list probably includes all languages spoken by groups of more than 100 million people: North Chinese (Mandarin), English, Hindi, Spanish, Russian, German, Japanese, Malay (Bahasa Indonesia), Bengali, French, Portuguese, and Arabic (Colombia, 1993). Of these, English is generally recognized as the international business language.

The most popular languages used in web pages are English, Chinese, Spanish, Russian, Arabic and French (such as the UN's web page) (United..., 2003). At least these six principle languages, and ideally ten languages (these six plus German, Portuguese, Greek, and Turkish) should be used in a digital library for Ottoman manuscripts in order to provide an efficient service and interfaces for its prospective multicultural users. Providing these multilingual interfaces and information support for them would improve the compatibility of the digital library with respect to the multilingual needs its community of users. This is akin to AltaVista's Babel Fish Translation Service, which already allows web services in ten languages free of charge for any type of Internet site (Altavista..., 2003).

6. Conclusion

Flooding, terrorism, bomb threats, explosions, transportation accidents, earthquakes, fire and war could all prove dangerous threats to the written cultural heritage. Only a few months ago, the Czech National Library was dramatically threatened by flooding. Terrorism, bomb threats, and explosions have been experienced by many of us in recent years. Earthquakes have resulted in the loss of many valuable parts of the written cultural heritage in the different parts of the world. It has been well publicised how much effort has been expended in order to restore the losses experienced by Bosnian and Kosovan libraries. The artifacts in Baghdad National Museum and Baghdad National Library are no longer available for the benefit of future generations and humanity as a whole. The world cultural heritage is continually at risk because of the natural and unnatural disasters. The development of a user-centered digital library for Ottoman manuscripts would provide significant insurance against the loss of these valuable materials, in addition to providing access to its contents for its multicultural users.

Quality standards have provided significant benefits in the information services environment in helping provide greater user satisfaction and CQI. A digital library service needs continual monitoring and evaluation: some data which should be collected to assist in these measuring performance include the number of sessions per member of the target population, the number of remote sessions per member of the population to be served, the number of documents and entries (records) viewed per session, and surveys of user

satisfaction with digital library service as a whole. Quality standards such as ISO 9000, should also be used in establishing quality characteristics and information service guidelines in a user-centered digital library for Ottoman manuscripts. The project managers of such a library can use such quality standards guidelines to aid the development of necessary features for key applications (Aytac, 2001; Stylianou, 2000).

Developing a multilingual and multicultural interface in a digital library for Ottoman manuscripts should enhance user satisfaction. It would also provide personal disk space for its users to record or store information they have collected or favourite links to sections of the digital library collections. It should also structure interactions with the user such as discussion lists or annotation platforms which will provide them with opportunity of participating in a wider user community.

If culture of different language groups are broadly different, so cultural differences in the meaning of icons, graphics, symbols, help menus, and colors are likely to be very significant. Proposed user-centered digital library for Ottoman manuscripts has to be developed in respective manner to these variety of cultural signals and has to present the best knowledge of the different variety of users and international or domestic conflicts, as well as controversies and sensitive issues with respect to flags, symbols, and names of countries or regions.

The development of a user-centered digital library system for Ottoman manuscripts accessible via the Internet will contribute to the worldwide availability of an important historical and cultural resource to a community of substantial multicultural and multilingual users. It is expected that such a user-centered web-based digital library could also be used in a distance learning environments for education and research in Ottoman history, culture and language by variety of users. It would also be a primary source for genealogy researches covering the period of the Ottoman Empire.

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