Managing Digital Libraries in the Light of Staff and Users: An Approach

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Abstract
Because digital libraries (DLs) are treated as determinant information centers, libraries especially their managers are thinking about how phenomenon "DLs" can be effectively managed. So, the present article aims to provide managers of DLs with an approach. To do this, two main pillars considered in definition offered by Digital Library Federation namely staff and users are debated. Accordingly, some skills, instructional programs and qualities needed both for users and staff of DLs with which they can interact more effectively with new technologies such as DLs are included in the text. In fact, this paper emphasizes on educational function of DLs and thus offers an approach for its implementation from a managerial standpoint.

Keywords: Digital libraries, Management, Librarians, End users.

Introduction

As information technologies, information systems and information networks have been developing, DLs are increasingly promoting in the third millennium. Although the concept of DL was first proposed as early as the beginning of the 1990s, they will become the gathering center and producer base of various information resources, the hinge for communicating among experts, librarians and readers, the navigator to discover, search and capture information and the modern institute to offer high-level information services (Zhou, 2005). As a result of such a development in the information services, libraries can be considered as a part of world or national network, playing a determinant role in the formation of scholarly relationships among researchers and societies. Consequently, moving from printed to digital environment is so deep and extensive that it mainly has been leading to changing nature of libraries as well as library science. In fact, libraries and information professionals have been faced a new paradigm; so, planning and anticipating library affairs have been challenged. Because of this, libraries especially their managers are thinking about restructuring and reengineering traditional services. In addition, the managers are concerned for how phenomenon "DLs" can be effectively managed so that not only they can meet the main mission of libraries to the society and human's cultural heritage, but also using available

innovations could provide information life cycle from creation to dissemination with more speed, scope, currency, efficiency, effectiveness, quality and productivity. Due to such variations, according to Salari (2006), libraries particularly DLs and their managers should pay attention to three functions to cope with today development and preparation for the future: educational function, research function and information function. Hence, the present article, using an educational approach, tries to emphasize the importance of educational function in the light of staff and users of DLs, and to address how can be implemented this function in such emerging libraries.

DL Definition

In order to manage a phenomenon it will be helpful to provide a precise definition describing it. Having a look at some existing definitions (e.g. ARL, 1995; Karvounarakis and Kapidakis, 2000; Wainwright, 1996; Wang, 2003; Xiao, 2003; Zhou, 2005; etc.) it is clear that there is not one agreement on this area which in turn has made some challenges for managing DLs. In relation to plethora of various definitions for DLs, Schwartz (2000) indicates that there are about 64 formal and informal definitions in association with DLs within different texts.

According to the purpose of this article, one of the most frequently cited definitions is provided. This has been published by Digital Library Federation (as quoted in Raitt, 1999):

"Digital libraries are organizations that provide the resources, including the specialized staff [librarians], to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community [audience] or set of communities".

This definition, considers different aspects of DLs as an organization. Accordingly, elements such as specialized staff, information resources selection, structuring and organizing information, evaluation, distribution and preservation of information, economical dimension and above all, community(ies) of users have been emphasized.

In general, regardless of other issues relating to DL management such as content management (Hartman et al., 2005 quoted in Lopatin, 2006; Hsu et al., 2006; McCray and Gallagher, 2001), access management (Arms, 2002; Lang, 1998 quoted in Zabihi et al., 2006; Patel, 2001), security management (Arms, 2002) and so on, the present article aims to provide managers of DLs with an approach which examines two main pillars included in definition offered by Digital Library Federation namely staff and users.

Staff (librarians)

As indicated in the definition of DLs, one of the vital elements of success and

dynamism is specialized human resources viz librarians. Paying attention to governing approach in association with human resource management in traditional libraries, it can be said that such an approach in the DLs, even more serious, seems to be necessary because the dynamic, changing as well as competitive environment has multiplied considering specialized staff and managing their skills and competences.

It should be noted that specialized staff is not simply limited to the librarians including catalogers, indexers and archivists but because of nature of DLs, other fields of particularly computer science[1] are also involved (McCray and Gallagher, 2001). However, due to approach of the present article, librarians are discussed.

As a result of emergence of digital environment and navigation of DLs, librarians' traditional skills have changed and so librarians are faced by new functions. Hence, from managerial perspective, survival secret is to be flexible and to develop librarians' skills. In this regard, Pfeffer (cited in Mullins, 2001) emphasizes the importance of people [staff] to organizational success and also argues, as part of people-centered strategies that is important for managers to realize that all work is knowledge work, even if it appears to be routine. Part of taking all staff seriously is to recognize the opportunities to leverage knowledge and build capability and skill in all jobs, in all organizations. In fact, training librarians and preparing them for working effectively as well as properly in the new environment, as one effective managerial arm, can contribute to the success of DLs management.

When we consider the state of education -formal education in the library science departments-for DLs (Liu, 2004), it is apparent that the importance of training librarians and making them familiar with theoretical and practical issues of DLs has been properly understood. And a course revolving on the subject "Digital Libraries" but in the form of different titles like "Digital Library Foundations", "Digital Librarianship", Digital Libraries: Technology and Policy", "Topics in Computer-based Information Systems: Digital libraries" and so on is offered. Along with the formal education offered by the library departments and their professors, managers of DLs should be well aware that "DLs need digital librarians" (Hastings and Tennant, 1996) and it is expected that some staff, on the one hand, have graduated before 1990s -namely before the emergence of DLs and related technologies- and on the other hand, all staff whether familiar or unfamiliar with theory and practice of DLs had better learn needed skills of working in these libraries through continuing informal educations.

Reviewing some related texts (Bawden et al., 2005; Chang and Hopkinson, 2006; Choi and Rasmussen, 2006; Deegan and Tanner, 2001; Marion, 2001; Zhou, 2005), it can be declared that in order to meet job requirements of DLs, totally, librarians should have skills and features included in tables 1 and 2, respectively. Therefore, it is important to remind that when employment of new human resources as well as

development of librarians' current skills, managers of DLs take these significant issues into consideration.

Table 1

21 Skills and Educations Needed for DLs Staff

1. Formulation of search strategies
2. Evaluation of websites
3. Guidance and education of users
4. Integration of network resources
5. Cataloguing and organizing digital information
6. Visualization and digitization technologies
7. Designing user interfaces and portals
8. Analysis and interpretation of information
9. Project management
10. OCR (optical character recognition)
11. Mark-up languages such as SGML, HTML and specially XML
12. Indexing & Abstracting
13. Technologies of databases
14. Programming
15. Web technology
16. Familiarity with web search tools
17. Management of e-publications
18. Information architecture (IA)
19. Information literacy (plus literacy of computer and network)
20. Metadata
21. E-metrics and evaluation methods of DLs

Admittedly, above suggested skills are not exhaustive; so, for further reading as well as more familiarity with necessary competencies for digital librarians, it is recommended to consult tasks, the requisite knowledge and skills suggested by Urs (2002).

Table 2

Necessary Personal Characteristics for DLs Staff (Adopted from Zhou, 2005; with some modifications)

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1. Compound knowledge structure. It means that the knowledge of the digital librarians should not be confined to a single field. Instead it should cover varied subjects such as library science, computer science, some specific technologies, communication science and so on.

2. Keen information consciousness.
- be quick to respond to outside sources;
- be good at finding useful information;
- have the consciousness to offer information service actively; and
- have the consciousness to add value to the information.

3. Excellent personality
- innovation intention;
- high team spirit;
- high flexibility;
- good imagination and foresight;
- healthy innate skepticism;
- propensity to take risks;
- good interpersonal and negotiating skills;
- changeability (change management);
- capacity to learn constantly;
- coping skills specially problem-solving one;
- crisis management;
- work independence (autonomy); and
- respect to professional ethics

Users

The second pillar considered in this article is users including librarians, professors, teachers, students, researchers and so on. In fact, users are the main component of information centers because dynamism and survival of libraries, in general, is highly dependent upon users' welcome and increased use of resources. As information value increases via making use of it, libraries are not expected to this rule. This rule is particularly more serious in relation to DLs because due to changing carrier and necessity of some skills relating to using information as well as navigating DLs, some issues such as moving from traditional environment to digital atmosphere, computer anxiety, technophobia, etc. are on the carpet.

Therefore, it is suggested that DLs managers consider a strong user instructional

program (Ashoor, 2000 quoted in Isfandyari Moghaddam and Bayat, in press) since it will serve as a key element in promoting the use of the DLs.

If managers of DLs act successfully on training new needed skills to librarians -which as first pillar were debated earlier- they have in fact taken a high step in meeting user education program because they will be faced less challenges for providing users with new skills. Moreover, multi-skillful librarians can explain themselves as well as importance of new information technologies including DLs more effectively (Whitmell and Associates, 2004 in Missingham, 2006).

As Ashoor, 2000 (quoted in Isfandyari Moghaddam and Bayat, in press) posits that "developing information literacy skills should be the main goal of the library's instructional programs", he defines it as "understanding the tools necessary to conceptualize, retrieve, evaluate and manage information". The most generally accepted definition of information literacy has been offered by ALA, 1989 (as quoted in Campbell, 2004):

"To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information".

As mentioned before, professors and teaching faculty are of end users. The need to promote information literacy skills in them includes enabling them to develop alternative methods of teaching and identify the variety of resources needed for teaching relevant update knowledge. On the other hand, students, as a significant part of users, should be proficient in the information literacy skills in order to meet their teachers or instructors' demands.

To sum up, in order to meet educational mission of DLs which, in long term, will lead to a tangible value-added as well as increased use and productivity of such emerging organizations, managers of DLs with the cooperation of librarians viz specialized staff and even some expert users should hold a variety of workshops, seminars and short courses. Accordingly, following topics can be recommended:

- Ways of storing and organizing information;
- Familiarity with basics of search;
- Basics of the Internet and its search tools including search engines and metasearch engines, …;
- Principles of information retrieval;
- How to evaluate information, information resources and etc;
- Familiarity with different format such as ppt, pdf, doc and so on;
- Familiarity with scholarly databases like Emerald, Ebsco and so forth;
- Invisible web;
- Information literacy skills;

- Information ethics;
- Research ethics;
- E-references; and
- How use e-mail for scholarly communications.

Additionally, DL managers should develop computer literacy skills (Isfandyari Moghaddam and Bayat, in press). For doing this, it is advisable that to effectively employ specialized staff particularly computer scientists. Some of these skills are creating web pages, manipulating digital images, designing databases, authoring multimedia, ICDL[2] skills specially familiarity with spreedsheet softwares like Excel and so on.

On the other hand, managers should consider designing, maintaining and developing highly search interfaces as mediators between resources included in the DLs and end users who need someone to meet their information and personal needs. Additionally, they should value some facilities so that content of DLs can be navigated and accessed more effectively. In this regard, Bertot et al. (2006) for the former as well as Zabihi et al. (2006) for the latter are highly recommended to read. Undoubtedly, this can result in the increased usability, functionality and accessibility of DLs.

Conclusion

Based on what has been already said, it can be concluded that instructional or pedagogical approach of DLs management does not generally differ from managing traditional libraries. In fact, the same principles but with broader range are applied in digital environment. Furthermore, the emergence of new issues in the DLs is rooted in the past of Library Science which via a gradual metamorphism has led libraries, librarians, resources, users as well as managers to the current condition.

It is important to note that DL management encompasses further issues including digital preservation, budgeting, financing, marketing, cataloging, searching, browsing, collection management and so forth. Yet, present article has debated two major elements included in the definition of Digital Library Federation from a pedagogical point of view. Moreover, further research is needed to evaluate functionality, usability, accessibility, efficiency, quality and effectiveness of DLs using both qualitative user-oriented and quantitative machine-oriented (system-oriented) studies.

In conclusion, Arms's (2002) saying must be reminded that "people, technology and administrative [managerial] procedures are intimately linked". In other words, it can be paraphrased that if managerial policies are made appropriately, related technologies are utilized optimally, specialized staff (librarians, computer specialists and human-computer experts) are employed according to practices and procedures defined in general policies and finally, necessary useful instructional programs are offered to users,

it is expected that quality and effective management casts a shadow over DLs.

Following implementation of educational function, hopefully, two other functions-research function and information function-can be met and thus according to Nasseh and Jahangeer (2006), "preliminaries of realization of a democratic and information-oriented society will be provided".

Notes

1. Computer scientists are concerned with the semantic interoperability a DL metadata standard affords in the very large Internet information space.

2. International Computer Driving Licence

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