

The status of the use of the Web 2.0 applications among Omani academic libraries (OALs)

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Abstract

The research intends to extract the real world complexity and evolve the use of Web 2.0 applications and thereby to realize the main target of improving the use of Web 2.0 applications in Omani Academic Libraries (OALs). Seven academic libraries were involved in this study: Sultan Qaboos University main library, Nizwa University library, Middle East College library, Ibri Applied Science College library, Sohar Applied Science College library, Muscat Higher Technical College library, and Nizwa Technical College library. 53 participants were selected for face-to face individual interviews in order to obtain understating of the complexity of implementation of Web 2.0 applications in OALs.

The findings revealed that implementation of Web 2.0 applications in OALs was problematical due to lack of use of Web applications activities. Currently, two out of seven libraries use Facebook, and only one library uses Twitter. Meanwhile, the library of Sultan Qaboos University is starting to apply the YouTube channel and Instagram on its Beta web site. The results also revealed factors that were delaying adoption of Web 2.0 applications in OALs. Interestingly, the findings of this study acknowledge Web 2.0 applications could enhance academic libraries in such fields as: giving the library an identity, promoting library information services, marketing library services, providing current awareness services, providing new acquisitions and communicating with library users and other libraries. Therefore, it was concluded that academic libraries should educate librarians and users regarding the use of Web 2.0 applications in library services, as well as formulate a policy and laws to use these applications in OALs

Key words: Web 2.0 applications, Information services, Omani academic libraries, Oman

1. Introduction

Web 2.0 applications are a technology shifting of the Web into a participatory platform, wherein people not only use content but also interact and produce information. These applications nowadays play a significant role in the education, business, healthcare and libraries sectors. Since the emergence of these applications, they have been widely used for the purpose of communication, sharing information and ideas and promoting services (Redecker, 2009; Wirtz, Schilke and Ullrich, 2010; Juzwish, 2009; Cova and White, 2010).

In the educational sector, by utilizing Web 2.0 applications students have the opportunity to communicate and share information through the Web (Uzunboylu, Bicen and Cavus, 2011). It is widely recognized that Web 2.0 applications have considerable impact on students' performance, reducing their feelings of isolation, increasing their ability for self-learning, their ability to obtain and record feedback from each other and to organize social activities (Gayle, 2008; Shihab, 2009; Redecker, 2009; Watson, 2012).

Academic libraries, as part of the higher education system, play a crucial role in providing trustworthy knowledge in educational institutions. They could make widespread use of Web search engines such as Google Scholar to change users' behavior in seeking information in libraries and utilize Web 2.0 applications to support provision of quality educational services. Web 2.0 applications in academic libraries contribute to improving the level of learning and research, establishing a new study environment, increasing the level of motivation among the students and presenting new windows for self-study (Chua and Goh, 2010; Darwish and Lakhtaria, 2011), thereby enhancing the learning skills of students, librarians and academic staff.

However, academic libraries are facing major challenges due to the fact that many library users are of the Internet generation and thus, libraries need to incorporate the use of Internet tools to correspond with users' behavior. In this regard, Sadeh (2007) emphasized that libraries need to adopt popular Web 2.0 applications and services to regain users' trust in their information resources. Moreover, libraries, as repositories of knowledge and providers of learning resources and information services, should strive to play a leading role in the Web 2.0 environments and the information society and to look for "ways to adapt to a changing world and keep their services relevant for today's information seekers" (Sadeh, 2007:307).

In the context of Oman, however, most of the academic libraries lack awareness of the importance of the Web 2.0 environment.. This is also clearly materialized in the Omani academic library (OAL) portals, where the links to using Facebook are ineffective. An early investigation was conducted to formulate the problematic situation of the use of Web 2.0 applications was conducted through interviews with librarians in the selected sample libraries(main library at SQU, academic libraries' LRCs at Rustaq Applied Science College and the Higher College of Technology in Muscat). The preliminary investigation revealed that the use of Web2.0 applications was considered as problematic as it is related to the fact that the use of Web 2.0 applications in Omani academic libraries (OAL) is limited. Only three libraries out of the seven were applying Web 2.0 applications in their services and one of these libraries was utilizing them informally (without support or recognition from their colleges). Only the main library in SQU provided links from its Web site to Facebook, Ask a librarian and Twitter. However, only 0.25 per cent of the students in SQU main library used Twitter while 6.4 per cent of them used Facebook. It is important to mention that all colleges of technology use more than one Web 2.0 application in their Web page. All of them use Facebook and Twitter, and some of these colleges' Web pages also use Google+ and You Tube besides Facebook and Twitter to contact with students, but do not make use of these applications in their academic libraries. The research, then, intends to investigate the reality of the problematic situation regarding the use of Web 2.0 applications in depth and thereby to realize the main target of improving the use of Web 2.0 in OALs

1.3 Research Questions

The study aims at investigating in depth the reality of Web 2.0 applications in Omani academic libraries (OALs).

To achieve the above objective, the present study attempts to answer the following questions:

- 1- What are the most use of Web 2.0 Applications in Omani Academic Libraries (OALs)?
- 2- What is the status of that use of the Web 2.0 applications among Omani academic libraries (OALs)?

Review of Related Literature

Previous studies have confirmed that Web 2.0 applications can promote the quality of provision of higher education learning and services by academic libraries for their users. There are several applications that librarians can use effectively to offer excellent, reliable services to meet users' needs. Also, previous studies have demonstrated the effectiveness of use of Web 2.0 in academic and national libraries for a variety of purposes, such as providing library news, publicizing events, alerting users about the arrival of new acquisitions, providing databases and e-journals (Mahmood and Richardson, 2011; Dickson and Holley, 2010; Tripathi and Kumar, 2010; Xu, Ouyang and Chu, 2009; Clements, 2009; Nguyen, 2008). Tripathi and Kumar (2010) studied the implementation of Web 2.0 applications in major academic libraries located in Australia, Canada, the UK and USA. The findings showed that 211 (76.2%) out of 277 academic libraries had implemented at least one of the Web 2.0 applications, while 66 (23.8%) of them did not use any Web 2.0 applications. RSS, IM, and Blogs were found to be the most widely adopted applications.

Likewise, Chu and Du (2012) conducted a study to investigate the use of Social Networking tools in academic libraries located in Asia, North America and Europe. They found that 27 out of 38 respondents were using Social Networking tools in academic libraries, while five academic libraries planned to utilize these tools in the future. Six of the academic libraries did not plan to use Social Networking tools. Their research identified Facebook and Twitter (nearly 63%) as the most popular social networking sites among academic libraries compared to IM (44.4%), Blogs (25.9%), Wikis (18.5%), Flickr (14.8%), You Tube (11.1%), Slideshare (7.4%) and LinkedIn, Issuu, and Delicious (3.7%).

Further studies have been conducted to explore the adoption of Web 2.0 applications by libraries in developed countries such as the US (Xu, Ouyang, & Chu, 2009; Mahmood & Richardson, 2011; Boateng & Liu, 2014) and Australia (Linh, 2008). Xu, Ouyang, and Chu (2009) found that less than half (34) of the 81 academic libraries in New York State used Web 2.0 applications in their libraries. Of these Web applications the most popular was instant messaging (34%), followed by Blogs (20%), RSS (14%), tagging (6%) and Wikis (6%), whereas Podcast (2%) was the least used Web application in these US libraries.

Another survey of 100 Web sites of member academic libraries of the Association of Research Libraries in USA was conducted by Mahmood and Richardson (2011). They found that RSS was the most popular Web 2.0 tool in academic libraries. Other tools used included instant messaging (IM) (95%), social networking sites (SNS) (87%), Blogs (85%), micro Blogs (82%), social bookmarking (55%), whilst 47% of the libraries used Flickr for sharing photos of events. The same authors, Mahmood and Richardson (2013), revealed that each US academic library used some form of Web 2.0 application and RSS (93%), Blogs (90%), social networking (90%), Wikis (87%), IM (85%), Podcasts, document sharing tools (66%), and video sharing (61%) were the most used applications. The least used Web 2.0 applications included MicroBlogs like Twitter, Identica, etc. (57%), Photo sharing (55%), Social bookmarking (42%), Presentation sharing (36%), Mashups (34%), Vertical search engines (28%), Virtual environments (28%), and Customized and Personalized webpages for users such as iGoogle (16%).

Linh (2008) surveyed Web 2.0 applications in Australasian academic libraries. The findings of the study showed that at least two-thirds had deployed one or more Web 2.0 applications. The results also revealed

that RSS (63.2%) was adopted most frequently, followed by Blogs (36.2%), Podcast (21.3%) and instant messaging (10.6%).

In terms of developing countries, previous studies showed that adoption of Web 2.0 applications among academic libraries was still low in places such as China (Han and Liu, 2010; Si, Shi and Chen, 2011), Africa (Wordofa, 2014;) Tanzania (Muneje and Abungu, 2012; Lwoga, 2014), and India (Lihitkar and Manohar, 2014; Husain and Nazim, 2015).

Han and Liu (2010) used a survey to investigate application of Web 2.0 in 38 top university libraries in China and concluded that whilst more than two-thirds of Chinese academic libraries used one or more Web 2.0 technologies, average use was quite low. The research also showed that Catalog 2.0 and RSS were the most widely adopted applications, while IM, Blogs, Social Networking Services and Wikis were the least used, and no libraries used Podcasts or Vodcasts. This finding concurs with results produced by Si, Shi and Chen (2011), which revealed that two-thirds of Chinese academic libraries implemented one or more Web 2.0 applications but only one-tenth of libraries applied more than four Web 2.0 applications. Their investigation of the application status of Web 2.0 covered RSS, Wikis, Blogs, Tag, IM, Podcasts, Vodcasts, Toolbar and Ajax. They found that RSS was the most commonly used and Wikis the least.

Muneje and Abungu (2012), meanwhile, found that the Web 2.0 application most frequently used by Tanzanian librarians in their study was Facebook, followed by Twitter and Blogs, whereas the least used Web 2.0 application was Podcast. According to Lwoga (2014), most students in Tanzania positively supported the implementation of Facebook and Blogs in Library 2.0 services. The study by Baro, Idioidi and Godfrey (2013) revealed that librarians in Nigerian academic libraries were more familiar with Facebook, Twitter, and IM and this had led to their adoption in their libraries. RSS, Flickr, Podcast and social bookmarking were the least used.

Preedip and Kumar (2011) focused on assessing the present status of academic libraries in the technological universities in south India in terms of providing information services via Web 2.0 applications and social media. The sample of the study included the Web sites of 40 institute libraries, 83% of which were private universities. They selected universities that were teaching technical courses in engineering, computing and management disciplines to assess the effect of technology supported learning and Web presence in academic libraries. They found that most of these academic libraries were limited in their provision of information services through Web 2.0 applications. In addition, basic library services such as the Online Public Access Catalog, reference desk, recommendations and feedback could not be accessed from the Web site, which made visibility difficult for the libraries. Furthermore, many libraries had no searching tools, i.e. they merely listed the resources of the institute on their Web site. Also, the Web sites did not include multimedia tools or audio-visual streaming content.

Lihitkar and Manohar (2014) performed a study to define the status and impact of Web 2.0 applications in academic libraries in Indian Information Technology institutes. The results showed that 12 out of 15 libraries and information services implemented Web 2.0 applications and provided library 2.0 services to users, but effort was needed to help familiarize library users with these applications. The most popular Web 2.0 applications were Social Networking (100%), RSS (75%), Blogs, Twitter and IM (58%); whereas Social Bookmarking, Podcasting (16.66%), Cloud Computing, Delicious and Virtual tour (8.33%) were less used. Mash-up and Folksonomy were not used in these Indian academic libraries. In contrast, Husain and Nazim (2015) concluded that use of social media such as Blogs, Wikis, RSS, Social Networking and Social Bookmarking was uncommon in Indian academic libraries.

Ramos and Abrigo (2012) investigated the current status of reference 2.0 services in Philippine academic libraries. In their study, they examined 356 Web sites of academic libraries to determine which of these libraries were presently offering reference 2.0 services and what tools they used. They selected three of the

largest academic libraries in the Philippines which were applying reference 2.0 services. Questionnaires, interviews, and examination of available documents including annual reports, usage statistics, chat transcripts and reference queries posted on Facebook library pages were used to gather the study's data. They distributed 280 questionnaires to users who visited the libraries to explore their awareness, preferences and attitudes regarding reference 2.0 services. In-depth interview was used to collect data from librarians to examine the nature, practices and impact of using reference 2.0 services in Philippine academic libraries. Descriptive statistics and rankings showed that 79% of the respondents knew about the reference 2.0 services' existence, but only 34% of the respondents used reference 2.0 services. Findings also revealed that users preferred to ask librarians through Ask-a-Librarian by using IM, e-mail reference and Facebook respectively, and they learned about reference 2.0 services from the library Web site (60%), friends (60%), library publications (53%), and librarians (15.8%). The study revealed that Ask-a-librarian, e-mail reference, and Web forms respectively were the three most preferred reference 2.0 services tools used by clients to search specific resources.

In Gulf countries, little research has focused on academic libraries' implementation of Web 2.0 technologies to advance their services. One study, by Al-Daihani (2009), indicated that Kuwaiti librarians have a low level of familiarity with Library 2.0. Among the limited research conducted in the area of Web 2.0 applications in Oman, Al-Hafeedh (2013), for example, studied the use of Facebook by bachelor students at Sultan Qaboos University. The research found that 76% of fourth year bachelor degree students at Sultan Qaboos University (SQU) had their own Facebook account. However, the overall average use of Facebook by these students to meet their academic needs in terms of information was low.

Moreover, Albusaidi (2016) examined the reality of using Web 2.0 applications as marketing tools for information services in the academic libraries, as well as the nature of activities. These can be used and developed through the development of the Internet. Furthermore, the study aimed to explore the new roles for the information specialists in the marketing process. The results showed that more widely Web 2.0 applications used in academic libraries in the Gulf Cooperation Council is Twitter and Facebook. The importance of social networking sites and their marketing ability as tools in various information institutions have been concluded. This is because social networks are featured by a lot of characteristics, the most important of which are personal profiles, and photos and videos. However, there are still some features that libraries could not adapt to comply with the process of marketing like Verified Badge feature. Marketing process in social networks has created a range of new roles for information specialists; the most important of these roles is creating new content in these networks. The study recommended that providing training programs for workers in libraries to familiarize them with marketing activities and social networks services. In summary, the review indicates that while academic libraries around the globe are making concerted efforts to implement Web 2.0 applications in order to promote and extend information services to users, their use in academic libraries in developing countries are particularly low. Previous studies have also indicated that not all Web 2.0 applications are used to the same extent and RSS, Facebook, Twitter are more popular than others in academic libraries around the world. Moreover, the literature reviewed for this study revealed a lack of studies based on interviews, focus groups and action research in the field of investigation of the implementation of Web 2.0 applications in academic libraries.

Population and Sampling

The population of current research comprised personnel at SQU Main Library, applied sciences colleges' learning resource centers (LRCs) and technical colleges' libraries, and private libraries of universities and colleges in Oman. The six LRCs of applied sciences colleges are under the auspices of the Ministry of

Higher Education and the seven education technology centers (ETCs) of technical colleges are under the Ministry of Manpower. The private libraries of seven universities and twenty one colleges are represented. A convenience sampling of 54% of OALs (SQU main library, LRC in Ibri Applied Science College, Sohar Applied Science College, and ETCs in the Higher College of Technical, Nizwa College of Technical, and Nizwa University library and Middle East College library) was selected to represent OALs. This sample was considered suitable because SQU main library exhibits all the features representative of OALs in SQU, and half of the sample LRCs and ETCs follow similar rules and have a similar working environment. Nizwa University library and Middle East College library were selected to represent private libraries in Oman because they are the two oldest and have largest collections.

53 directors or heads of libraries were selected by convenience sampling to describe the problematical situation and to understand the study problem based on views of participants from real organizations. The participated staff of these libraries is characterized as shown in Table (1).

Table 1: Number and type of respondents at participating libraries

Library	Role of participants	Number of interviews
L1	Director (D, N=1) User services staff (USS, N=3) Educational Technologies staff (ET, N=1)	5
L2	Assistant Director (AD, N=1) User services staff (USS, N=2) IT staff (IT, N=1)	4
L3	Director (D, N=1) Assistant Director (AD, N=1) User services staff (USS, N=6) Director of Information System Centre (DIT, N=1) Head of Academic Systems and Department of Libraries (HASDL, N=1) Head of Library's budget (HLB, N=1)	11
Information system centre in SQU	Director of Information System Centre (DISC, N=1) Head of Networks Department (HND, N=1)	2
L4	Assistant Dean (AsD, N=1) Head of Learning Resources Centre (HLRC, N=1) Assistant Head of Learning Resources Centre (AHLRC, N=1) User services staff (U, N=4) IT staff (IT, N=1)	8
L5	Dean (D, N=1) Assistant Dean (AsD, N=1) Head of Learning Resources Centre (HLRC, N=1) Assistant Head of Learning Resources Centre (AHLRC, N=1) Head of Library Division (HLD, N=1) User services staff (USS, N=2) IT staff (IT, N=1)	8

L6	Dean of college (D, N=1) Head of Library Division (HLD, N=1) User services staff (USS, N=3)	5
L7	Assistant Dean (AsD, N=1) Head of Educational Technology Centre (HETC, N=1) Head of Library Division (HLD, N=1) User services staff (USS, N=3)	6
Information System Department in MHE	Head of Learning Section and E-databases (HLS, N=1) Website Specialist responsible for managing Symphony integrated library system (WS,N=1)	2
Omani Libraries Association	Head of the Omani Libraries Association (HOLA,N=1)	1
The Research Council Digital Depository	Responsible investigator from the Digital Depository (RIDD,N=1)	1
Sum		53

Methodology

A qualitative approach was applied and data were collected through

- 1- Surveying 20 web sites from among (40) universities and colleges in Oman to investigate the most of Web 2.0 applications in in their libraries.
- 2- Face to face interviews to draw out the views and experience of research participants as key actors and owners in Omani Academic Libraries (OALs). Semi-structured interview is used as a flexible means of asking in-depth questions and clearing up any misunderstandings. The interview questions were formulated based on previously reviewed works. All questions were common and undetermined in order to give participants the opportunity to express their opinions and expose more facts and insights about diverse matters with respect to specific fields.

Reality of the Use of Web 2.0 Applications in OALs

To respond to the first research question, the researcher surveyed 20 web sites from among universities and colleges in Oman to investigate the use of Web 2.0 applications in their libraries. Table (2) provides an overview of implementation of Web 2.0 applications in OALs.

Table 2: Overview of use of Web 2.0 applications

University or College	OAL	Application	Year
Sultan Qaboos University	Main library	Ask a librarian	1999
		Facebook	2011
		Twitter	2013
		Instagram	April 2014
		YouTube	September 2014

Rustaq Applied Science College	LRC	-	-
Sohar Applied Science College	LRC	Facebook since 3 months ago	2014
Ibri Applied Science College	LRC	Facebook and Blogs (use them unofficially)	-
Muscat Higher Technical College	ETC	-	-
Al Mussanna Technical College	ETC	-	-
Ibra Technical College	ETC	-	-

The data in the above table show that the use of Web 2.0 applications in OALs is limited. Only two of the seven libraries in this study were using Web 2.0 applications in their services. For example, a librarian from L5 commented that "we have only been using Facebook for three months, and the library staff sometimes use Twitter through the college website for library advertising purposes". In contrast, the assistant head of the learning resources center from L5 remarked that *"I feel that users use Facebook in social communication more than academically, so we have received only two comments from users regarding issues related to library services. We need to encourage users to use Facebook effectively"*.

Meanwhile, the assistant director of L3 emphasized that *"Facebook, Twitter, and Ask a Librarian are used to offer our services"*. Moreover, currently in Beta "we use Facebook, Twitter, YouTube and Instagram"(USS, L3). Library 3 and library 5 used Facebook for several purposes in promoting their services. A user services staff member with responsibility for Web 2.0 applications on the L3 website commented:

"Facebook is used for library advertisements, showing books, marketing library services, marketing electronic information sources that our library is participating in, library visits schedule, receiving requests and suggestions about the use of the library or development of certain services, current awareness, announcement of training sessions, for updating and sharing news and pictures".

A user services staff member responsible for the Facebook page on the L5 website confirmed that:

"We started using Facebook on our library website 3 months ago. We use Facebook in providing library information, library photos, library services guidance, current awareness, providing title pictures of new books with summaries and their call number in the library, brief summary of the classification scheme used by the library, a simple explanation about shelves, how to use self-loan services, how to use the online catalog, links to libraries and free electronic journals, guide for use of DOAJ and information that will encourage students to read".

Recently, L3 have launched Instagram and a YouTube channel on their Beta website. *"Right now we are testing Instagram on our new website. It includes a short introductory film about the library, photos of library events, photos about library visits, session photos with a simple explanation, and photos of books, their titles and call numbers"* (USS,L3). Also, user services staff from L3 commented that *"we have a video about how to use electronic resources in our library. We are going to use YouTube to display it for users. Also, we are planning to use YouTube to show users how to use particular services in the library, like self-service loan and unified search service"*. In addition, library 3 was publishing the same news and events information on Facebook, Twitter and Instagram. One possible reason is that L3 wanted to reach the largest possible number of library users. It is logical to assume that different users may have accounts in different Web 2.0 applications due to their different interests.

Interviews procedures and analysis

To respond to the second research question, Building a rich picture of the problematic situation is required. A rich picture aims to present the problem situation from different viewpoints. This is because a picture can more easily than the written form explain problematical issues in detail. The picture provides a framework that will help in defining the structure and the process and the way they relate to each other. The structure consists of layout, hierarchy, reporting and structure of communications, while a process is developed to decide and monitor the activities. A rich picture can be understood as an instrument that shows the situation and explains it to the stakeholders. Also, it examines their understanding of the situation (Checkland and Poulter, 2006; Delbridge and Fisher, 2007). To build the above rich picture, a thematic analysis method was used to develop themes based on the different viewpoints of the participants..(Figure 1)

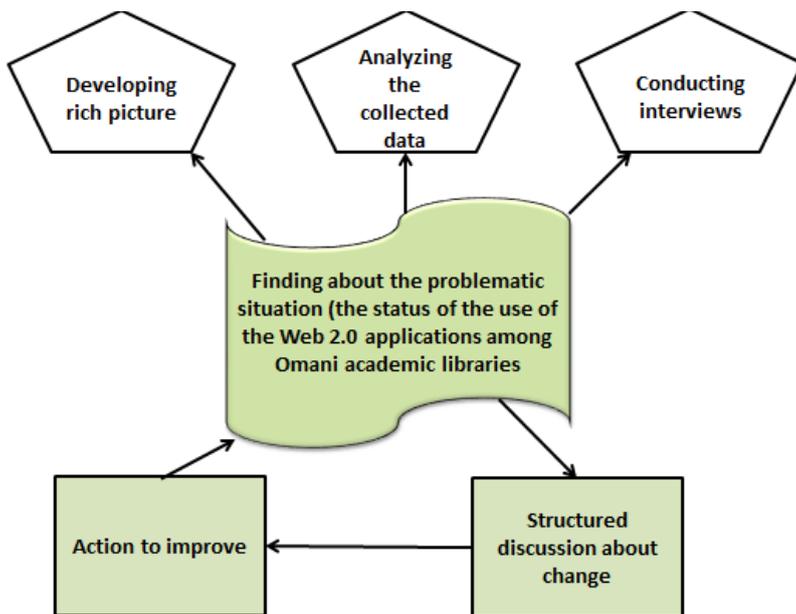


Figure 1: Study Model of the Current Research

Data Analysis and Discussion: Finding Out about the Problematical Situation

Semi-structured interviews were conducted to investigate the reality of the use of Web 2.0 applications in OALs. Primarily, it was found that participants in different situations indicated different perceptions and interpretations regarding the various issues related to the research problem. According to current research, this was expected since academic libraries are considered as human activity systems which include diverse human interactions. The interviews analyses were contributed to rich pictures which allow comprehensive understanding of the situation regarding implementation of Web 2.0 applications in OALs.

The overall picture of the problem shows that the use of Web 2.0 applications in OAL is limited. Only three libraries out of the seven were applying Web 2.0 applications in their services and one of these libraries was utilizing them informally (without support or recognition from their colleges). For example; the librarian of L5 commented that "we have only used Facebook since three months ago, and the library staff sometimes use Twitter through the college Website for library advertising purposes". Meanwhile, the assistant head of the learning resources center from L5 remarked: "I feel that users use Facebook in social communication more than academically, so we have received only two comments from users regarding issues related to library services. We need to encourage users to use Facebook effectively".

However, the assistant director of L3 emphasized that "Facebook, Twitter, and Ask a librarian are used to offer our services". Moreover, currently in Beta "we apply Facebook, Twitter, YouTube and

Instagram"(Uss, L3). In L4, the head of library division reported: "we use Facebook and Blogs informally ". Nevertheless, some librarians did not use them and they mentioned that Facebook and Twitter are used by the college for administrative purposes. For the reason that the Web site is designed by non-specialists, it appears inappropriate for use with Web 2.0 applications in terms of information archiving and security issues. In addition, because L4 was not implementing Facebook and Blogs officially, the information on the Web site was out of date and irrelevant. User services staff in L4 commented that "Facebook and Blogs are not given enough attention by the staff of the library due to a shortage of staff in the library and not being supported by top management of college". As a result, interest in these applications declined and they were seen as unattractive means of communication.

Because Colleges of Applied Sciences (CAS) have a centralized system, the researchers conducted interviews with staff in the information systems department in MHE to investigate the reality of using Web 2.0 applications in CAS libraries. The head of learning and e-databases emphasized that "currently we have an agreement with an international company (IMTAC) to design a unified Website involving all Applied Sciences Colleges and libraries that associate with them, but Facebook, Twitter, Instagram and YouTube channel are applied only on the colleges' Web sites". He explained that MHE does not apply Web 2.0 applications in the libraries because "we are technical; we depend on what the information system company offers us according to global trends for already designed Web sites. However, library staff, if they need to implement Web 2.0 applications on their Web site, should consider their requirements"(HLS). In addition, he remarked on the need for training librarians to acquaint them with how to use Web 2.0 applications in their libraries effectively: "thus the agreement with the IMTAC Company covered training some of the college staff".

Ideas for Improving the Current Situation

By the end of the individual interviews, questions had been asked regarding suggestions of library directors and staff for improving the current situation in OALs. Most of the suggestions focused on the role of the library in implementing Web 2.0 applications. Other suggestions related to overcoming the difficulties facing OALs in applying Web 2.0 applications. The suggestions offered an idea of the type of systems that could be developed to improve the current situation.

The head of library division of L4 suggested increasing decision makers' awareness regarding the use of Web 2.0 applications as top management decisions are required for utilizing these applications in the library and top managers could also therefore facilitate their use. To demonstrate this point, he gave an example: "the use of Blackboard to support E-learning will be challenging until a decision comes from top management to make using Blackboard compulsory in applied Sciences Colleges. It is important to mention that because of that decision administrators of colleges have supported this project strongly, especially with the finance procedures".

Furthermore, the head of library division of L7 suggested formulating policy and laws concerning the use of Web 2.0 applications at OALs: "we need to identify clear policy on using Web 2.0 applications in the library because we are dealing with users in a virtual environment. This includes regulation of online chatting between librarians and users, policies and regulations to organize users' suggestions, feedback and content published in social networks tools". Additionally, a user services member from L3 suggested "developing a clear plan of using Web 2.0 applications at OALs". Another user services staff member from L3 proposed "developing criteria for the use of the Web 2.0 applications based on a study of the behavior of Omani beneficiaries". Moreover, a brainstorming session was recommended: "a brainstorming session is required between officials and library staff on the basis of issuing a clear action plan to be employed for Web 2.0 applications in the library and then evaluating the application and the plan" (USS, L4).

However, because L3 have been using some of these applications since 2010 they realized the need to develop policy concerning the rules and regulations for using Web 2.0 applications. Thus, the assistant director of L3 commented that "today a decision has been taken by top management to form a committee for managing the content of social networks, attached to a policy to clarify the use of Web 2.0 applications in the library".

The director of L1 made a suggestion to "implement Web 2.0 applications in collaboration with other organizations". He added, "Teamwork through cooperation between organizations might reduce the library staff effort required to implement Web 2.0 applications". Furthermore, user services staff from L3 commented that "discussing Web 2.0 applications with other organizations or through the intervention of the Omani Library Association is necessary".

A number of participants in this research agreed that it is essential to market Web 2.0 applications that are known to library staff and users: "there is no benefit of the use of Web 2.0 applications in the library if the user does not have the willing culture and awareness to use these applications. There is an increased need for information awareness among users, to highlight the actual benefits of using them in academic libraries. We need to highlight the differences between the use of traditional techniques in offering library services and the new ones of 'Web 2.0'" (Uss, L3). Indeed, user services staff from L6 commented that "creating awareness about available services will definitely motivate its use and will reduce their efforts in searching information and knowledge sharing". Therefore, they suggested increasing awareness of use of Web 2.0 applications in OALs by means of such as orientation, discussion and training.

In starting to prepare qualified human resources to apply Web 2.0 applications in OALs successfully, user services staff from L3 and L4 agreed on the need for specialized training courses on Web 2.0 applications. Staff should be trained in depth to apply Web 2.0 applications in the library and how to keep up-to date with these applications. Meanwhile, the director of L1 suggested: "library staff can learn by experience, learning from Web sites, through books. But from my experience, proper workshops and training are necessary because these workshops provide proper headlines that might not have been noticed clearly and give some pointers on doing the job better".

Second, some library staff recommended marketing Web 2.0 applications and Internet applications, to make them known to library users through organizing workshops or short seminars. User services staff from L2 stated that "the librarians should train users on how to use Web 2.0 applications in the library properly. We can organize an open day to train and debate the issues related to the Web 2.0 applications". This suggestion was supported by the following comment from user services staff from L3: "If users are not able to use Web 2.0 applications, there is no benefit in implementing these applications in the library". Furthermore, regarding marketing Web 2.0 applications to make them known by other libraries and organizations, we invite centers, libraries and academics in SQU to follow our library through Web 2.0 applications" (USS, L3).

Third, because of relationship between use of digital resources and implementation of Web 2.0 applications in libraries most of the library staff suggested educating users in regard to using these electronic databases effectively. For instance, user services staff from L4 recommended "forging cooperation between librarians and teachers in the college to encourage students to use digital resources and Web 2.0 applications". Correspondingly, the head of library division of L7 agreed with user services staff from L6 on "encouraging students and faculty to use digital resources through the library holding orientation days. This will provide us with all the evidence required to convince authorized people about our need for renewing the subscription to these e-databases". As well it was necessary to discuss with authority about "increasing subscriptions to electronic databases" (Uss, L4).

Finally, some library staff suggested providing "budget and equipment and infrastructure that would fit with applying Web 2.0 applications" (USS, L4).

In summary, the results indicated that two out of the seven OAuse Facebook, and only one library uses Twitter. Currently, the library of Sultan Qaboos University is starting to apply the YouTube channel and Instagram on its Beta web site. Also, the findings of the study acknowledge Web 2.0 applications could enhance academic libraries in such fields as: giving the library an identity, promoting library information services, marketing library services, providing current awareness services, providing new acquisitions and communicating with library users and other libraries. Therefore, it was concluded that academic libraries should educate librarians and users regarding the use of Web 2.0 applications in library services, as well as formulate a policy and laws to use these applications in Omani academic libraries.

Conclusion

The research results confirm that limited use of Web 2.0 applications in OALs might be attributed to lack of awareness of Web 2.0 applications among librarians. This result supports findings of surveys conducted by Al-Daihani (2009), and Husain and Nazim (2015) and Arif and Mahmood (2012). Al-Daihani found that surveyed librarians in Kuwait had a low level of familiarity with social bookmarking, social networking, image sharing and collaborative authoring. In addition, Husain and Nazim (2015) revealed that the use of Blogs, Wikis, RSS feeds, social networking and social bookmarking was uncommon in Indian academic libraries because of lack of trained of information and communication technologies (ICT), lack of ICT skills among library users, lack of awareness of potential benefits of ICT, and inadequate ICT infrastructure. Likewise, librarians in a study conducted in Pakistan considered their lack of awareness about Web 2.0 applications as a major factor hindering them from utilizing Web 2.0 technologies in Pakistani libraries (Arif and Mahmood, 2012). Similarly, Charnigo and Barnett-Ellis (2007) found that although most librarians were aware of the Facebook phenomenon and very enthusiastic about using it in libraries, some were still not aware. In contrast, in Nigeria, Baro, Idiodi and Godfrey (2013) found that librarians were very familiar with social networking, instant messaging, media sharing, Blogs, Wikis, RSS feeds and social bookmarking respectively.

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