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A Study of the Usability and Design Components of Academic Libraries Websites in Pakistan

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Study of the Usability and Design Components of Academic Library Websites in Pakistan

Introduction

In current era of information technology the World Wide Web (www) is an important mean of communication and as a source of interaction, information delivery and information exchange for many organizations. Consequently, quality website designing is a critical success factor for any institution possessing a presentation on World Wide Web. The Internet has several aspects but one of its' primary component is website. The website brings together hundreds of distinct but related services and aim to deliver them in a logical and easy to use manner. These information and other services can be retrieved using a website belonging to a certain firm or organization.

Diaz (1998) stated that library website play as the role of a library workstation, both for the end users and for the library professionals. It helps the users to expand their research or to find the answer to a very simple query (p. 41). McGillis and Toms (2001) added that "library Web sites are applications that support users in their information tasks". Similarly, Nielsen and Tahir (2002) added that an institution's webpage is its virtual face to the world, its house's hall, and the institute receptionist. It is like an ambassador of an organisation which is responsible for interaction with external world, and this interaction can only be meaningful if the website is designed and furnished with sophisticated features, however these features are of no value if the online users fail to find the required information or required goals.

The basic components that designers use to communicate the essential information include amount of text, graphics, layout, hyperlinks, and animations (Geissler, Zinkhan and Watson, 2006). Moreover, Rasmussen (1996) stated that graphical design, layout and contents are primary components which make the website easier to use. A library website itself is the representative of an institution for interaction with core audience, an effective mean of communication and an important publishing and searching tool of information. Academic library Website must be clear, concise, informative, and graphically appealing. According to Hlynka and Welsh (1996) the webpages are

meant to teach or provide information, they also emphasized that a webpage acts like a communication device.

Considering the importance of the academic library website its design requires special attention. The approaches for developing a website include both simple and complex. Some of the studies have supported simple websites and emphasized that these are successful and easy to use (Agarwal & Venkatesh, 2002; Shneiderman, 1998). While some explain that complexity raises the richness of information and enhances the satisfaction of users (Palmer, 2002). This is an important consideration that a large part of the use of library website is for information search and attainment of related goals. If user fails to obtain the required outcome it results in their frustration and dissatisfaction.

Websites must provide much more handholding and much more simplified contents to help users in surfing (Nielson, 2008). However, familiar usability options still cause failures when they try new sites, Surfing or browsing on the internet refers to locating a suitable website to retrieve relevant information from it. The experience of users in this field is more proficient in surfing websites comparing with inexperienced users. The evaluation of retrieved information is dependent on the basic elements of a website. Web evaluation studies indicate that elements of a website like amount of text, graphics, animations, clear hyperlinks, proper navigation, and consistency of webpages determine important user outcomes such as web-information and web-system quality (McKinney, Yoon and Zahedi, 2002).

The common activities which users perform on a website is reading text, which become more important when searching and retrieving information, but reading a large amount of text on a website is often avoided by users as they consider it a boring task. Hong and Moriai (1997) suggest that dividing webpages into appropriate size would also increase the readability of the pages.

Study of the Usability and Design Components of Academic Library Websites in Pakistan

The following features of a website evaluation have been presented by Elemental Creative (www.elementalcreative.co.uk/).

- Discover how to improve the navigation on the web site.

- Help to understand the strengths and weaknesses of a web site.

- Can choose the best prototype for the next web site redesign.

- Develop the best navigation and content grouping for the web site.

- Improve customer satisfaction, loyalty and retention through providing a good user experience.

- Discover the problems with the site that drives customers away.

The common problems which exits with a website and users experience them include:

- Lack of supporting tools like Search option, Site map, Help menu etc.

- Most of websites have Non-standard scrollbars which make people fail to see most of its offerings.

- Links that don't change their color when been clicked confuse the users, making them unsure about what they have already seen on a website.

- The absence of layout often frustrates users. The layout in a website needs special attention, sometimes the designers' needs to design a uniform layout and sometimes to design a diversified layout.

- Opening a new browser window is still confusing for the users. Because they start thinking why the back button suddenly has stopped working and the related options have changed in that newly created window.

- Pop-up Windows often confuse users. They don't know why an extra window appeared which they haven't created.

Study of the Usability and Design Components of Academic Library Websites in Pakistan

Users support website to have the features of proper navigation, visually attractive graphics, like ease of use and a simple layout. This study addressed users' experience with surfing academic libraries websites and purpose of using. This study also evaluated some important design components of academic library websites and extent of satisfaction from these websites.

Literature Review

Due to the rapid development and growing use of internet both as an electronic commerce as well as information seeking tool, web design and evaluation studies has been growing in significant amount. Many organizations depend upon efficient and effective websites. In recent years, several methods have been introduced for measuring and improving the effectiveness of websites, however they mostly concentrate on web page design and on access analysis. Since late 1990's a number of studies were conducted for website evaluations. Generally speaking, there are two mainstream on researching website quality, namely content richness and ease of use (Huizingh, 2000). A number of web design checklists have been developed with the aim to identify design evaluation criteria for good or poor websites. Poor interface design is one of primary reason of high profile website failures (Nielson, 1999; Buschke, 1997). Usability refers to consistency and ease of getting the website, clarity of interaction, ease of reading, arrangement of information and layout (palmer, 2002; Raquel, 2001) has defined website usability as that how easily a visitor without formal training can interact with website. Users visit websites mainly to fulfill their goals. Websites are created for a variety of purposes like for entertainment, for information, and for educational etc. Each category of website needs different strategies but the basic elements are required to be there.

The design components of a website influence on users' satisfaction (Stevensen, Bruner and kumar, 2000). Hence it is useful to determine that what makes a user satisfied with website components as well as what may potentially dissatisfy them. However users often experience complexities when browsing a website which may be avoided by the designers when developing

them. Similarly, "Satisfied users appear to spend a longer time on website and are more likely to revisit it and recommend it to others (Zhang et al. 2000)". Geissler, Zinkhan and Watson (2001) found that perceived complexity were the outcome of four major factors: (1) good graphics, (2) number of links, (3) home page length, and (4) animations.

Several web design techniques have been developed with the intent to identify design and evaluation criteria for excellent websites. These techniques are for effective and motivational aspects of the web environment and also for the differentiation of those websites who please users with those which turn off users. Design and contents are two of most essential factors that results in a successful website.

The common features which make a website usable and serviceable are stimulating and visually attractive for users (Zhang and Gissala, 2000) and the elements of a website which make it reliable are accuracy of the contents and accuracy of the navigation or hyperlinks. Navigation across the webpages plays fundamental role and it is an important design element allowing users to see most of the information they are looking for and making it easier to find them (Machlis, 1998).

In the online environment a website is a key medium of communication between users and their parent organization. Users can interact with the information cues and retrieve their online tasks as websites represent a major task stimulus for online users. Information cues such as text, hypertext, animations and navigation tools presented on a website are central to online users' perceptions (Agarwal and Venkatesh 2002; Palmer, 2002). "Current practices on website design and existing studies on website evaluation seem to focus on two levels of granularity, specific features and categories that refer to a group of similar features (Zhang et al. 2000)".

Qutab and Mahmood (2009) conducted a study to analyze the content, navigational strength and weaknesses of library websites in Pakistan. They found that no scholarly work has been written on this issue in Pakistan. Furthermore, lacks of standards for content selection, lack of important

features were found in developing these websites. Most of them were lacking uniformity in design components. The study recommended that the usability and quality of websites must be improved. The findings of the study suggested that attention should be given to prepare such websites which meet the information needs of its users. This study aims to present an improved and better understanding of important website design components, satisfaction of users, and their interaction with website in an online environment.

The basic purpose of this research is to recognize such website design factors that not only ensure technical functionality but seek to maximize user capabilities to control and make a website usable and serviceable and avoid users' frustration or dissatisfaction.

Objective of the Study

1. To identify frequency of using academic library websites.

2. To identify the purposes for which the academic library websites is accessed by users.

3. To assess the importance of academic library websites' usability and design components.

4. To identify the extent of satisfaction with library websites.

5. To put forward some empirical evidences to evaluators and website designers about different features which are more important in developing academic library website.

Methodology

To achieve objectives of this study, a survey was conducted among the users of federal universities at Islamabad, Pakistan. A paper based structured questionnaire was administered among the sample of 300 users in November 2012 with a response rate of 257 (85%). Proportional quota sampling method was used as 80 questionnaires were completed from International Islamic University, Islamabad (IIUI), 60 from Quaid-i-Azam University, 70 from National University of Science and Technology (NUST) and 47 from National Defense University (NDU).

The sample was assumed appropriate because it included individuals who had knowledge in using internet and thus had relatively well-formed perceptions about the capabilities of the web.

Data Analysis

The first section of the instrument dealt with demographic data (gender, age, and academic qualification), frequency and purpose of accessing those websites. The second section comprised of 17 items to seek respondents' views on different attributes in the dimensions of problems experienced in surfing (one attribute), good graphics and layout (five attributes), navigation (four attributes), pop-up advertisements (two attributes), organization of information contents (three attributes) and personalized services (two attributes). In addition, the reliability (internal consistency) of the items was tested with SPSS-19. The Cronbach's alpha (CA) value was observed as 0.78, which is considered as significant.

Respondents Demographic

Table 1 shows that 186 (72%) male and 71(28%) females respondents were participated in the survey. Majority of them were between the age group of 19 to 25 years (n=135, 52%), 78 (30%) were between the age group of 26-35 years, 22, (8%) had 18 years of age, and only 3 (1%) had above 50 years of age. Respondents were asked about their academic qualification. Result of the study indicates that most of the respondents' had Master degree (n=155, 55%), 22.7% (n=60) had Bachelor degree and 52 (20%) had doctoral degree. Among them, only 02 (0.7%) did not respond to the question.

Study of the Usability and Design Components of Academic Library Websites in Pakistan

Table 1 *Respondents' Demographic Information (n=257)*

Attribute(s)		
Gender	**Frequency**	**Percentage**
Male	186	72%
Female	71	28%
Age		
Under 18	22	8%
19-25	135	52%
26-35	78	30%
36-50	19	7%
Above 50	3	1%
Education Level		
Bachelor's Degree	60	22.7%
Master Degree	143	55%
Doctoral	52	20%
Not Declared	2	0.7%

Frequency of Using Academic Library Websites

Respondents were asked to rate the frequency of accessing academic library websites. Table 2 shows that almost 142 (55%) respondents used library website on daily and 30% (n=79) used on weekly basis. Among them, 23(8%) used them "Occasionally" and only 13 (4.7%) on "Monthly" basis.

Study of the Usability and Design Components of Academic Library Websites in Pakistan

Table 2 *Frequency of Using Academic Library Websites (n=257)*

S. No.	Statement	Frequency	Percentage
1	Daily	142	55
2	Weekly	79	30
3	Monthly	13	4.7
4	Occasionally	23	8

Purpose of Accessing Academic Library Websites

It was found that out of 257 respondents, 120 (46%) of the respondents accessed the academic library websites for "Information Retrieval" purpose, 95 (36%) of the respondents accessed for "Educational", 33 (12%) for "Advertisement" and only 9 (3%) of the respondents accessed for "other" purposes (Table 3).

Table 3 *Purpose of Accessing Academic Library Websites (n=257)*

Rank	Items	Frequency	Percent
1	Informational Retrieval	120	46
2	Educational	95	36
3	Advertisement	33	12
4	Staff Directory	9	3

Importance of Academic Library websites' Usability and Design Components

The respondents were asked to mention the most important components of academic library websites. It was found that majority (56%) of the respondents reported that the 'clarity between text and images' is "important", and 32 per cent indicated it as "very important" component of a library website. Among them, 9 per cent respondents remained "neutral" and only 0.3 percent respondents

9

indicated it as "not important" and "not very important" component of library website respectively (Table 4). Furthermore, 63 per cent of the respondents considered the layout of website as "important" and "very important (19 per cent)" component of academic library website. Apart from that, 15 per cent respondents were "neutral" and only 2 per cent reported that the layout of library website is "not important" and "not very important" (0.3%) component. For a statement "uniform layout across a webpage", it was found that 46 per cent of respondents believed that it is "important" while 35 percent indicated it as "very important" component of a library website. Of them, 8 per cent respondents were "neutral" and only 4.4 per cent respondents considered it as a "not very important" component. Respondents were surveyed to rank their opinions about the standard scroll bar on webpage. The findings show that most of them 70 per cent ranked it "important", 20 per cent ranked it "very important" component of a website while 6 per cent ranked it "neutral". On the other hand, only 2.4 per cent of respondents ranked it "not important" component of webpage. It was also evident from the findings of this study that an indicator of user's location within a website was reported as an important component of a website. For example, 65 per cent respondents reported it as "important" and 25 per cent considered as "very importance" component. Among them, 4 per cent were "neutral" and only 3 per cent reported it as "not important" component within a website.

This study produced some unique results in the component of Pop-up advertisements on academic library website. Respondents were asked to rate the importance of "Average Pop-up Advertisement per webpage". It was found that 50 per cent of them rated it as "important", 41 per cent rated it as "very important" component of a webpage. Among them, 4 per cent respondents were "neutral" while 5 per cent reported it as a "not important" component. Supporting tools like site map, search option and help menu were considered among the basic components on a website. Majority (62%) of the respondents stated that these components are important, and 38% of the respondents stated that these components are very important for academic library website.

Furthermore, respondents were asked about the importance of contents and headings on library websites. It was found that most of them (56%) reported it as an "important" component, 35 per cent reported it as "very important" and only 5 per cent respondents reported it as "not important" component of academic library websites. Another question was asked regarding the presence of external recognition on website (e.g. awards won, statistics of visitors, users online now). The analysis of the study found that majority of them (52%) considered it as "important, 38% considered it as "very important" component in academic library websites. On the other hand, 10% respondents were considered it as "not important" component. The respondents were also asked that how much important is the opportunity being provided by academic library websites to you to be a part of online community or group. It was found that most of them (80%) considered it "important" component and 20% considered it "very important" component of academic library websites.

Finally, they were asked that how much is important that academic library websites respond to your specific needs. It is evident from the results that majority of them (52%) mentioned it as "important" and "very important" (42%) component of library websites.

Satisfaction with Library websites or webpages

Table 5 shows that majority of the respondents were satisfied with the first time surfing on library websites (84%), with hyperlink (79%), with clarity between text and images (56%), with animations and short videos (65%), and with average Pop-ups per webpage (56%). On the other hand, they were not satisfied with layout (62%), with choice of clicks (73%), with standard scroll (52%), with presence of indicator (51%), with supporting tools (65%) and with part of online community (58%) on academic library websites.

Study of the Usability and Design Components of Academic Library Websites in Pakistan

Table 4 *Respondents' Opinions About the Importance Of websites' Usability and Design Components (N=275)*

S. No	Items	Very Important %	Important %	Neutral %	Not Important %	Not Very Important %
1	Clarity between text and images	32%	56%	9%	0.3%	0.3%
2	Layout of website	19%	63%	15%	2%	0.3%
3	Uniform layout on webpage	35%	46%	8%	4.4%	0
4	Standard Scroll	20%	70%	6%	2%	0
5	Presence of Indicator	25%	65%	4%	3%	0
6	Pop-ups ads on webpage	41%	50%	4%	5%	0
7	Supporting tools	38%	62%	0	0	0
8	Presence of Contents	35%	60%	0	5%	0
9	Presence of external recognition	38%	52%	0	10%	0
10	Part of online community	20%	80%	0	0	0
11	Treating as unique person	42%	52%	0	0	0

Table 5 *Respondents' Opinions About the Extent of Satisfaction with websites' Usability and Design Components (N=275)*

No.	Satisfaction	Yes%	No%
1	First time surfing	84%	16%
2.	Hyperlink	79%	21%
3.	Clarity between text and images	56%	44%
4.	Animations and short videos	65%	35%
5.	Layout across a webpage	38%	62%
6.	Choice of clicks	27%	73%
7.	Standard scroll	48%	52%
8.	Presence of indicator	39%	51%
9.	Average Pop-ups per webpage	56%	44%
10.	Supporting Tools	36%	64%
11.	Presence of table of contents	35%	65%
12.	Part of online community	42%	58%

Conclusion

The findings of the study reveal that most of male students participated in the survey. Majority of them were between 19-25 years of age. Most of them were pursuing master education. They were accessing library websites on daily basis for information retrieval, education and advertisement purposes only. Furthermore, most of the respondents believed that the usability and design components of websites are important for academic library webpage or websites. However, they were not familiar with some of the websites features presented in the survey.

This study has identified some important design components of websites which need to be included in academic library websites. Designers must provide a balance between the graphics and contents of

webpage in such a way that may not confuse or frustrate the users. Good graphics has been considered as an important component of a website (Rasmussen, 1996), so clear text and images, short animations and a layout across the webpages should be improved. The findings of this study have shown that most of the users believed that color of hyperlinks and presence of a standard scroll bar across a webpage are important component of websites. As Machlis (1998) suggested that some good navigation techniques are needed for effective websites. Like previous studies, the basic components such as site map, help menu, search option have taken high attention among users and were considered as most important components for websites (Palmer 2002). It is evident from the findings of the study that users expect to have such websites which provide them problem solving services and direct interaction with administrators.

Limitations and Directions for Future Research

The relatively high level of experience and high usage of internet among students, this study included a large number of university students as sample size requirements. Students are not the only group who use the internet and surf the websites, this can be termed as one of the limitation of this study. Although it have been tried to identify important elements and factors that influence user expectations and outcomes about a website, the list of elements in this study are limited, some factors that may affect website usability were omitted from this study. For example a wide disparity in connectivity speed and bandwidth, the download time needed for a webpage of a website was not included in the study as we are not talking about a specific website, also the bandwidth is increasing day by day and it is expected that this may not be an issue in near future.

Screen size influences the degree of scrolling required to see all of the information on a webpage. In current study this factor has been avoided. Computer screens are not the only form of visual display since web users on mobile phones and other related devices having smaller display

area may face the problems of scrolling more severely, all these can be examined in a future research.

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