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PUBLIC UNIVERSITY LIBRARY WEBSITES IN BANGLADESH: FEATURES, CONTENTS AND MAINTENANCE ISSUES

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Abstract:

The objective of this study is to explore the contents, features, and maintenance issues of Bangladeshi public university library websites. To ensure representativeness, we selected twelve (12) public university libraries that have dedicated websites. For authenticity and reliability of data, a checklist of sixty-one (61) items divided into ten (10) categories was used, along with interview procedures. The findings of this research have been presented in both tabular and figurative forms. According to the research, the website trend, which began a few years ago, will become a driving force for library services, although there is still potential for development such as liquid layout, mobile-friendliness, Web-OPAC, online tutorials, etc. and may indicate some maintenance issues for the library's website. This research is useful for information scientists and academic librarians involved in the establishment and management of library websites, particularly in underdeveloped nations like Bangladesh, where resources are restricted and studies are sparse.

Keywords: *Academic Library, Website, Public University, Library Website, Website content, Academic Library Website.*

1. Introduction

University Library Websites (ULW) serves as information centers for academics, **researchers**, students, and others. It has become a vital part of higher education and serves as a conduit between patrons and the library. If the website isn't well-designed, users will always have trouble discovering and obtaining information. The term "library website" refers to a website that is owned, managed, and utilized by or for the library to inform

users and the general public about the library's varied content offerings, policies, goals, initiatives, and processes. Bangladesh (People's Republic of Bangladesh) gained independence from Pakistan in 1971 after a fight for independence. At the time, Bangladesh had only six public universities. However, the number of public and public universities has increased substantially in the previous three decades, and there are now 159 of them. (UGC, 2021). Libraries have changed their services to fulfill information and research demands online in the digital age, when academics rely extensively on e-books, digital resources, databases, OPACs, e-newsletters, electronic theses and dissertations, and institutional repositories. To accomplish their goals and ambitions, libraries rely on web-based services. (Mandrekar, 2021). Academic library websites act as portals for university students and faculty. Academic library websites act as portals for university students and faculty. This site provides access to electronic databases, digital collections, online catalogs, library tutorials, and library services information. (Condic, 2021). This study looks at the current quality and content of Bangladesh's public university library websites, as well as how they help library users communicate. The factors that go into building a library website in Bangladesh can also be applied to other poor countries. The study will be especially valuable for librarians who want to build a new site or improve an existing one, as well as researchers who want to do additional research in a related field.

2. Literature Review

As technology advances, users will be able to better utilize the possibilities of a variety of learning and communication tools. Even in recent years, the internet has accelerated the evolution of library services (Maheswari, 2021) and computers have created a host of new possibilities. Several studies have been conducted on various areas of academic library websites, such as electronic services. (Mirghafoori, 2020 & Latifian, 2021), best practices (Feras Al-Hawari, 2021), and user satisfaction (Karani, 2021). They are found in the scientific literature. Many studies have been conducted in the Indian Subcontinent, Europe, North America, and the Middle East, among other places. (Williamson, 2021) conducted a study at the University of Idaho, Moscow on Using static web technology and a git-based workflow, I redesigned and maintained a library website with non-technical staff. This study presents the methodological case for using Jekll instead of a content management system (CMS) as well as the practical methods used to build a long-term and agile development strategy. (Nagaiah, 2021) Using ZOHO.COM sites and AWESOMETABLE.COM, A study was conducted to develop the library website and the

OPAC online public access list, as well as to improve their design. It gave a high-level overview of how to create a library website and OPAC. (Desmarais, 2020). The Northeastern State University library website was researched to see how users felt about it and what they wanted, Oklahoma, USA. The study investigated how to improve the current website's navigational features and content in order to provide a better user experience in the future, as well as how to use the website's resources and services. (Shevchenko, 2020) studies user behavior on library websites in order to improve virtual information and library services in Novosibirsk, Russia. Its purpose was to examine library website users' actions by recording their activities, determining popular content, recognizing browsing trends, and, as a result, increasing access to popular content. The study of behavior models and the deployment of web analytics have contributed to the creation of solutions to improve the usability and functionality of the State Public Scientific-Technological Library's website. (Mierzecka, 2016). Conduct research into the functions of an academic library website in the context of people seeking information. This research was carried out at the Universities of Warsaw and Vilnius in Poland. The study's goal was to figure out which aspects of the academic library website are the most important to students. The study identified five functions of the academic library website from the perspective of a user-centric approach: (1) supporting the usage of the collection (both online and traditional); (2) promotion of culture; (3) gateway for locating information on the Web; (4) education; and (5) creation of the library's online image. (Devi, 2018) examine and analyze the content and design trends of nineteen (19) Indian Institutes of Technology (IITs) library websites. They discovered that only four IITs have a library homepage, with one having a dedicated library page.

Only a few IIT Library websites/webpages have included information about collections services, value-added services, and links to Web 2.0 technologies. Another study was conducted by (Verma, 2020) on eighteen (18) State Public Universities' Libraries Websites in North East India. The study's objectives were to learn fundamental information about the library, such as its collections, facilities, online library services, and links to e-resources, as well as provide some crucial recommendations. M.A. Ganaee and M. Rafiq (2016) conducted research on the features, contents, and upkeep of Pakistani university library websites. The websites and web pages of university libraries were investigated in this study. 38. The goal of this research was to assess the current state and characteristics of Pakistani university library websites, as well as to look into the issues that come with

creating and managing library websites. The findings demonstrate that Pakistani academic library Websites include useful features such as contrasting color schemes, easily legible text, minimal horizontal scrolling, and English material. Staff information, OPACs, and navigation tools are also available on the websites. Less often encountered features include Web 2.0 technologies, Website support tools, information about library buildings, and general library information.

In Bangladesh, there are only a few research projects linked to university library websites. (Islam, 2011) A study was undertaken in Bangladesh to assess the utilization of university websites. This investigation involved a total of 200 students from 20 different universities. The HTML toolkit and the webpage analyzer were used to evaluate the usability of the website. The goal of this study was to look into the usability of several university websites in Bangladesh, identify any flaws, and then make recommendations for how to improve the usability. The study found that the university websites' usability elements are lacking, failing to satisfy user requests and expectations. The internal quality of these websites was also determined to be lacking in the study. Rekha, R, and Kumar, R conducted another study (2019). The study focuses on a webometric analysis of SAARC countries' national library websites. The purpose of this study was to look into such websites' web presence and visibility, as well as their ranking utilizing webometric metrics. The results of the study were utilized to rank the websites using the WISER ranking method. The National Library of India has a significant online presence, according to the findings. The National Library of Bangladesh outscored all other libraries in a webometric ranking, taking top place. According to the study, webmasters should upload more material in the form of rich files and make more scholarly content available to improve their web presence and exposure. In the context of Bangladesh, (Rashida, 2021) conducted a study on the design of a framework for assessing university website quality evaluation. The goal of this study was to compile a list of university websites that were ranked according to their quality. This research looked at the content, loading time, and overall performance of university websites. As a result, determining the strengths and weaknesses of university websites was critical.

However, no study based on existing literature has been identified to investigate the current state, features, and upkeep difficulties of university library websites in Bangladesh. Users can learn about the library's materials and services, as well as how to contact the

right employees for assistance, by visiting the academic library's website. Many electronic services are also offered for both local and distant users through library websites. As a result, it is planned to assess best practices for constructing and managing library websites in order to assist people who are interested in, and may be new to, developing library websites.

3. Objectives

The objectives of this study are as follows:

- 1] To assess the current status, contents, and features of Bangladesh's public university library websites
- 2] To determine the maintenance concerns with the PULW

4. Research Question

Based on the research gaps, here are two questions raised:

Q1: What are the content and features of public university library websites in Bangladesh?

Q2: What are the maintenance issues with the PULW?

5. Research Methodology

Research Area: Public universities are self-governing and government-funded. 159 universities in Bangladesh (49 public, 107 private, and 3 international) (UGC, 2021). The following 12 public university libraries were selected for this study; each includes a dedicated website with information on library services, online catalogs, library tutorials, and a variety of content options. For this study, the universities listed below were chosen. Table-1 contains a list of these, as well as the related webpage.

Table-1: List of the University Libraries Website

Sl. No.	Name of the University Library	Web Address
1	Bangladesh Agricultural University Library	https://library.bau.edu.bd/
2	Bangabandhu Sheikh Mujibur Rahman Agricultural University Library	https://bsmrau.edu.bd/library/
3	BUET Central Library	http://lib.buet.ac.bd/home/
4	Central Library Patuakhali Science And Technology University	https://library.pstu.ac.bd/library
5	Central Library Khulna University of Engineering and Technology	https://library.kuet.ac.bd/

6	Central Library, SUST	http://library.sust.edu/
7	Chittagong University Library	https://library.cu.ac.bd/
8	CUET Central Library	http://103.99.128.14/
9	Dhaka University Central Library	http://www.library.du.ac.bd/
10	DUET Central Library	https://www.duet.ac.bd/central-library/
11	Rajshahi University Central Library	http://library.ru.ac.bd/
12	Sher-e-Bangla Agricultural University Library	http://www.saulibrary.edu.bd/new/index.php

Population, Sample, and Data collection: The research was carried out in several stages. First, a web-based survey was carried out to compile a list of university websites in Bangladesh. During this procedure, 12 public university library websites emerged.

Phase two involved reviewing related material in order to create a checklist. There were 61 items on the checklist, divided into ten (10) categories. Finally, I did a quick interview to get more information about Library Website Management and future plans for improvement.

Data Assessment Methods: The SPSS 22 program was used to analyze the demographic data. A checklist was used to analyze the various components of each website. Mobile-Friendly Test -Google Search Console, a free online tool given by Google to verify the mobile-friendliness of a webpage (<https://search.google.com/test/mobile-friendly>), was used to determine the mobile-friendliness of websites. The methodology used for content analysis is based on content analysis of websites by (Quatab, 2009) and (Ganaee, 2016).

6. Findings

There was no library website that had all of the items on the checklist. A few websites, such as those at the Dhaka University Central Library, Rajshahi University Central Library, BUET Library, and Sher-e-Bangla Agricultural University Library, did, however, contain a significant number of items on the checklist. The checklist had eight items that could not be found on any Library website.

Existing Status of University Library Website in Bangladesh

Out of 159 university libraries in Bangladesh, 43 (Public, 12 & Private, 31) have websites. This means that only 27.004% of university libraries have a website. In contrast, 46 (public, 19 & private 27) out of 159 university libraries have a webpage, accounting for 28.93 percent, while 70 (public, 18 & private 52) out of 159 university libraries have no website or webpage for the library, accounting for 44.025 percent (70.93 percent).

Table – 2: Existing Status of University Library Website in Bangladesh

Sl. No.	Types	Website	Webpage	No Website/Page	Total Number
1.	Public University	12	19	18	49
2.	Private University	31	27	52	110
Total=		43	46	70	159

Access Library Website from Organizational Home Page

Over 66.66 percent of university library Websites (8 out of 12) could be accessed directly from the university Websites' homepages (Table- 3). On the other hand, 33.33% (04 out of 12) library Websites were not found through a direct link on the homepage of the parent institution. In such cases, links to library Website were found in the second- or third-level navigation of the navigational bar, under Academic, Campus, Resources or other pages. The majority of the time, library sites were located within three clicks of the institutional homepage. For customers with sluggish Internet connections, many Websites used to include a link to a text-only version. This functionality was not found on any of the study's websites.

Homepages of library Websites were checked for mobile-friendliness using the *Mobile-Friendly Test - Google Search Console* Checker. Total 12 library websites were tested the result shows that 05 Library websites (41.66%) are mobile-friendly and 7 Library websites (58.33%) are not mobile-friendly.

Table-3: Access Library Website from Organizational Home Page

Sl. No	Reason	Frequency	Percent
1	Library Website link existing at the second- or third-level navigation of the navigational bar, under	09	75%

	Academic, Campus, Resources or other pages		
2	Direct Access from the organizational home page	08	66.66%
3	Mobile-friendly	5	41.66%
4	Text-only version	0	0%

Value-added services

Value-added services are those that aren't included in the core library services but provide value to a website. A "Search" feature, for example, allows the user to search for specified

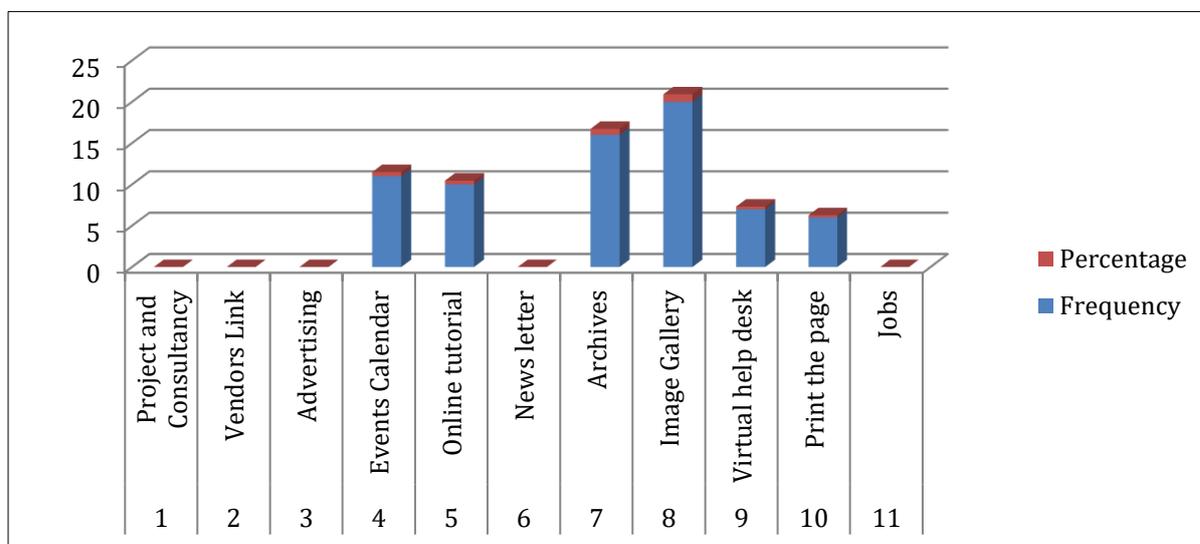


Figure - 1: Value-added services

words. The "Image Gallery" page was the most commonly used feature (04 Websites, 33.33 percent). Project and Consultancy, Vendors Links, Advertising, Newsletters, and Jobs, on the other hand, are not located on any website. The prevalence of requested value-added services is detailed in Figure - 2.

Appearance

In this section of the study, the overall look of the Web pages, including the color scheme used, text visibility, left-to-right scrolling of Web page to view its content, library and university logos, and the application of liquid layout are assessed (see Table-5) Scrolling left and right to view the full contents of a Web page is undesirable because it requires

extra interaction from the user. No website found Left to right scrolling. Liquid layout (also called responsive design) allows the contents of the Web page to adjust to fit multiple screen widths, at different zoom levels it is found on 12 (100%) Websites. Most of the Websites 12 (100%) used visible and well-contrasted color schemes on their pages. No libraries had library logos on their Web pages. on the other hand, the appropriate domain name was 10 (83.33%) universities, and the last update shows only 2 (16.66%) universities (See Table-5).

Table - 4: Appearance

Sl. No	Description	Frequency	percentage
1	Text Easily readable	12	100
2	Visible, Contrasting color Scheme	12	100
3	University Logo	12	100
4	Liquid Layout	12	100
5	Use Graphics, pictures or Charts	11	91.66
6	Left-right Scrolling	0	0
7	Library Logo	0	0

Authority and Currency

A proper domain name and URL can be used in signatures, letterheads, and elsewhere to market the library Website. URLs such as www.universityname.edu.pk/library or library.universityname.edu are more usable and easier for users to remember than more complex URLs such as www.universityname.edu.pk/administration/library.php or www.university.org.pk/index.php/professional-dept/library. There were 10 library Websites (83.33 percent) with proper domain names found in the study (Table 6). (Tiwari, 2011) defined copyright as “the exclusive legal rights granted by a government to an author, editor, compiler, composer, playwright, publisher, or distributor to publish, produce, sell, or distribute copies of a literary, musical & dramatic”.

Table -5: Authority and Currency

Sl. No	Description	Frequency	Percentage
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1	Website Copyright information	11	91.66 %
2	Proper Domain name for the library	10	83.33%
3	Site maintenance is outsourced	2	16.16%
4	The last update date mentioned	2	16.16%

Languages

In Bangladesh, most of the universities are practicing the medium of English as their study language. In the age of Globalization University libraries are making their website using the English language. Though the official language of Bangladesh is Bengali, all the websites are made by using the English language. The study shows that 100% of university library websites are used the English language.

Navigation Features

Easy navigation helps the user to reach the required information in less time. Many navigational tools were used to facilitate users' needs. A link to the homepage of the parent organization helps users jump to the institution's main Website. This study found that 9 out 12 (75%) library Websites had a link to the institution's main Website (see Figure 3). The Page Title of the Website appears in the Title bar of the browser if properly defined in the HTML code. This feature helps users jump to the desired browser window, by clicking the tab when more than one Website is open in the browser. The study found that the page title in the top bar appeared in 11 university library websites (91.66%). Navigational Bar 9 university library websites (75%), Breadcrumb Trail 8 (66.66%) and Quick link box or Dropdown 9 (75%) (Figure-2).

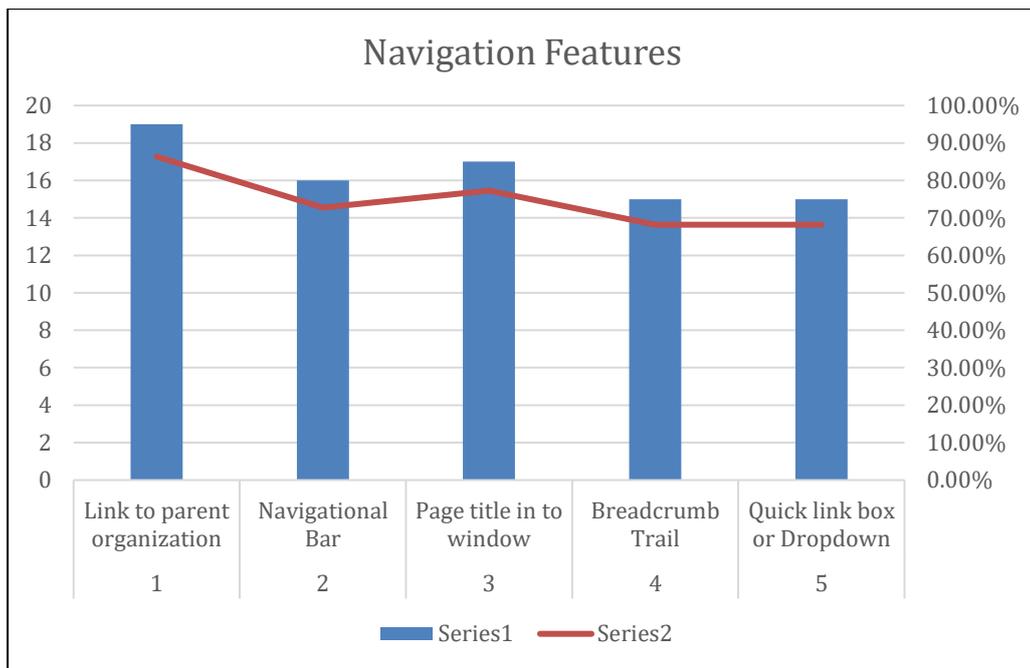


Figure – 2: Navigation Features

Website Aid and Tools

Website aids and tools include the features that help a user to easily navigate the website and facilitate enhanced use of the website. Features included in the study were website search, site maps, user feedback, and user guidelines for using the website. Figure 6 displays details of such features found on the library Websites. A Website search option was found on 6 (50%), whereas a site map listing the links to important Web pages of the Website was found on only 2 public university library websites (16.16%), Site feedback from or E-mail link 5 public university library websites (41.66%), user guidelines 4 public university library websites (33.33%).

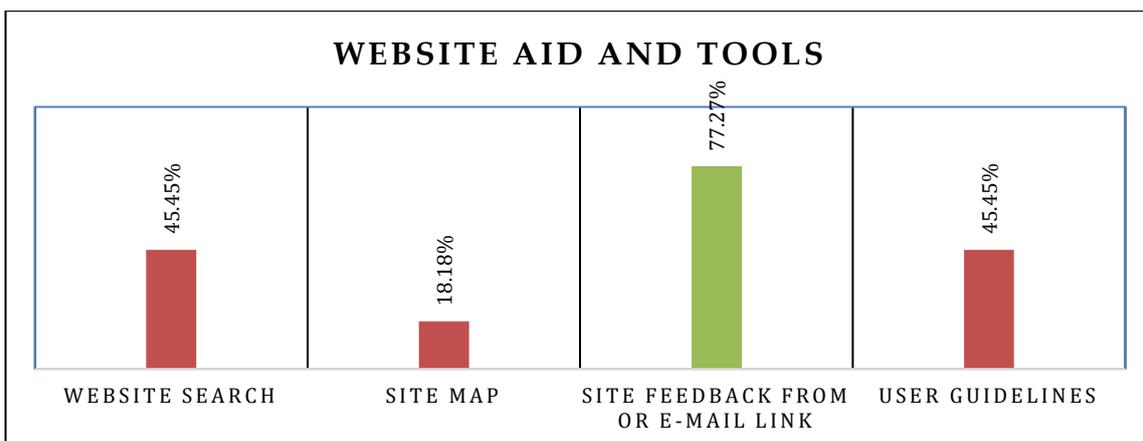


Figure – 3: Website Aid and Tools

Library Staff

The twelve (11) libraries about 91.66% provided a library staff directory on their websites (see Table- 7). The most commonly provided information was about professional staff only 11 Websites (91.66%), followed by staff contact number 10 website (83.33%) Websites. In addition, qualifications of the staff were 2 Websites (16.16%) while photographs of the staff were 9 Websites (75%).

Library General Information

General information about the library on the checklist included a library introduction; the library’s history; a mission statement; the aims and objectives of the library; working hours of the library; instructions about library use; news and events; information about classification and cataloging; library policies; procedures and rules; fines accrued rules; loan periods; material reservation; FAQs about the library; ongoing projects in the library; information about library committees; information about other/departmental libraries; and information about membership, including total members, membership categories, and how to get membership to the library.

Table-6: Library General Information

Sl. No	Reason	Frequency	Percentages
1	Language	12	100
2	Library Staff Directory	11	91.66
3	Mission & Visio	11	91.66
4	Working Hours	11	91.66

5	Instructions about Library use	10	83.33
6	Library History	10	83.33
7	Staff E-Mail and Phone Number	10	83.33
8	Photographs of the Staff	9	75
9	Photographs of the Building	8	66.66
10	News and Events	7	58.33
11	Library FAQs	4	33.33
12	Library Committees	4	33.33
13	Ongoing Projects in the Library	2	16.16
14	Qualifications of the Staff	2	16.16
15	Video/Virtual tour of Library	2	16.16
16	Information about the Building	1	8.33
17	Map/Floor Plan of the Library	0	0

7. Website maintenance issues

a) Internet Use in Mobile Device: Internet usage on mobile devices has increased in recent years, and Bangladeshi library users often access Websites on their smart phones. The results obtained using the *Mobile-Friendly Test - Google Search Console* Checker in this study was very low. The result show that 22 Public university library websites 14 (63.63%) are mobile friendly. So it is needed to make library website mobile friendly.

b) Professional gap between library staff and IT staff: The lack of coordination between library staff and IT staff is as another major problem. IT staff sometimes unable to understand the urgency and importance of specific requirements on library website because they have some psychological differences. The IT staff does not have professional knowledge on Library Management in the same way; the library personnel do not have sufficient knowledge and practices on Information Technology usage in the library also. Due to this, a big gap on professional knowledge is visible in the context of websites maintenance. So, it is a very common but significant problem.

c) Uninterrupted power supply: Bangladesh is facing shortage of electricity, and there is a huge difference between the demand and supply of electricity though the gap is

reducing day by day. “Chronic electricity shortages, up to 18 hours per day, have crippled industry and stoked public anger” (Walsh 2013). Two professionals mentioned the load-shedding of electricity as a hurdle they face in regard to website maintenance. At present, the electricity production and demand rate in Bangladesh are respectably 25235 MW and 13992 MW (bpdb, 2021). In this observation, it is clear that uninterrupted power supply is a big issue for the website maintenance.

d) Internet Bandwidth: In Bangladesh internet bandwidth is overall good. (Habiba, 2019) shows her study that internet connectivity of 31 % university rated excellent, 19% adequate and 4% reported poor internet connection. But in case of slow connections, slow Web servers, and unavailability of the Websites 24/7 were technical issues faced by the staff in maintaining and updating of Websites. At present in Bangladesh, the 4G internet is already spread all over the country. It is a good sign of using 4G internet in library. If we can be holding out the use of good internet bandwidth, the website maintenance will be very easy.

e) Lack of Technical and Skilled Library Staff: Most often library professionals join their work after completing academic careers without getting higher level of ICT skill or training. So it is the big challenge to make the library staff technically sound. This scenario can be changed by organizing in-house computer and ICT based training for the professionals. For proper maintenance of library website technical and skilled library staff are required.

f) Lack of training for Web development: There are insufficient opportunities and resources to organize a web development training program for library personnel in Bangladesh. Bhatti (2012) identified inadequate in-service training for library staff and suggested a national committee consisted on stakeholders for the improvement of the situation. Without sound knowledge on website development and maintenance it is impossible to manage the site. Most the interviews opined that the library staff who get training on web development by their own-arrangement.

g) Non availability of 24/7 yet: Possible user can hit the website any time at anywhere, so the website should be available 24/7. The study observes that most of the PULW are not available at 24/7 because of policy of the organization and lack of technical support. They always maintain a certain period for opening and closing the website every day.

h) Slow Web servers: In the age of information technology, people expect to access the websites quickly. The page loading time 6-10 second are often required. Slow web server kills time and user face bad experience. In Bangladesh perspective most often library website is setup a normal desktop and use as a server that's why when multiple user access the site it become slow. On the other hand, web upload of long data file make server slow. Like those various issues can make webserver slow. It can be reduce only proper and expertize management of Library website.

8. Discussion

Overall, the study's assessment of Public university library Web sites in Dhaka, Bangladesh, reveals that there is much space for improvement. Many Public university websites are still under construction. In this study, 22 Public university library websites in Dhaka were examined. The authors feel that an adequate representation of an academic library on the Web required three or more pages, based on the scope of library services to be given, and that just 22 Websites met that standard. Mobile internet usage has risen in recent years, and Bangladeshi library patrons frequently use their smartphones to access websites.

The statuses of mobile friendly websites are 14 out of 22 (63.63%). Features, content, and services were checked on the 22 Public university library websites in the study against the prepared checklist. In the category of valued-added services, most items did not get an appreciable score for including value-added services, such as Library logo, library newsletters, online tutorials, events calendars, and so on. These services increase the value of the websites and are more helpful to users who access the library information remotely through the Web. Most websites examined in the study were adequate in terms of appearance with easily readable text, well-contrasted color schemes, no horizontal scrolling, and appropriate use of graphics. Proper domains for library websites were found for only 15 sites (68.18%), showing a relatively low level of prioritization by university management for a unique library web presence. The proper creation and maintenance of a well-designed library website is important for advertising and providing library services. The authors suggest regular checking to identify broken links or malfunctioning scripts.

The major problem with updating and maintaining library Web sites was the lack of coordination between the library and the IT or Web staff, wherever maintenance of the

website was done by IT staff. The situation could be improved by making teams for updating Web content and by conducting regular meetings to increase coordination. Another issue was the lack of necessary skills by the library professionals responsible for website maintenance. Training of the library professionals could be arranged, for example, learning HTML to build and update webpages. One technical issue discovered during the study was electricity load-shedding, causing problems in providing 24/7 access to the websites. Because they are a first point of access to library for distance users, websites should provide an overall picture of library resources and services. They also provide useful information for on-site users. Information about library working hours, public holidays, getting membership, library rules and policies, different library sections, and facilities provided is helpful for current and future users. Library professionals should develop a team of content managers and divide library pages to each member who would be responsible for providing content for pages and checking for accuracy. Usage of Web 2.0 applications (e.g., Facebook, Twitter, instant messaging) would introduce and market the library, its resources, and services to a wider audience.

9. Conclusion: There are 49 public universities in Bangladesh but only 12 university libraries have their own websites. There are a number of hurdles in creating, managing, and managing websites, but librarians have embraced these challenges. Most of the 61 checklists were observed on different websites but 8 points were not observed on any website. As a result, further research on website deployment, standards, and management is required.

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