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# Content Evaluation of Jawaharlal Nehru University and Banaras Hindu University Library Websites in India

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## Abstract

*The study evaluates the content of Jawaharlal Nehru University (JNU) and Banaras Hindu University (BHU) library websites using qualitative (11 checkpoints) and quantitative (170 checkpoints) evaluation. The qualitative parts covered 11 features which belong to the homepages of the websites, which helps as recording devices of the descriptive information, moreover, quantitative part of the checklists covered 170 dichotomous question affiliated to the different aspect of the features such as; multimedia, general information, services, resources, my library features, web2.0/library2.0 features, currency accuracy and relevance, organization and structure features, links and maintenance features, user-interface features, search features and informative feedback and support features. A quantitative 5-points rating scales was executed to provide a numerical rating for each feature and rank them on the bases of numerical facts. The study has shown that the library websites are lagging behind to take full advantage of advance web2.0 features. Findings show that the JNU library website is scored 128 out of 170 (75.29%), which ranked above average, whereas BHU library website has ranked average by scoring 74 out of 170 (43.52%) features. This research is one of the unique studies should help the website developers in both the Universities to improve the quality of library websites. The study attempts to show certain features in both the libraries that need enhancement to make them user-friendly and improve user engagement. The study can serve as a benchmark for other library websites for evaluating the progress of their websites. Moreover, it can also help in discovering the nature of library websites in the era of ICT.*

**Keywords:** Content, Websites, Evaluation, University Libraries, India.

## 1. Introduction

In the age of ICT, academic libraries face the challenge of meeting the information demands of patrons varying accessibility from simple books to e-resources and now information on the go services. Earlier, needs of patrons were quite different and easy for library staff to adjust. They would guide the diverse users to different physical resources available in the library or sometimes if the resource was not available, the best they could do was to refer them to some other library or information center. Now the patron visits the library not only through the front door but visits the library at any remote place via library websites.

“Academic library websites provide information about libraries and library services as well as access to online catalogues, electronic databases, digital collections, and different library tutorials; academic library websites are thus gateways to information for faculty and students. Today, students can ask reference questions online, conduct research in

databases, place interlibrary loan requests online, and obtain academic articles electronically”(Aharony, 2012). Different University library websites have different content on them and have meagre established processes for creating, updating, and deleting that content.

“There is no clear vision or purpose to the content, and numerous staff members are expected to maintain content with little guidance, because, many library websites end up with content that is poorly written, duplicative, or out-dated”(Blakiston, 2013). To understand the usability of any library website depends upon its content. The stronger the content of any library website the more patrons following it will attract. “To analyse the content of any website we need a method of content analysis; Content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on an explicit rule of coding” (Chikkamanju, 2015; Singh and Gautam, 2016). The present study is to compare the web-based contents of the two Central Universities; BHU and JNU library websites in order to ascertain how effectively the libraries are utilizing their respective websites to provide easy access to different services and resources.

## **2. Review of Literature**

There are numerous papers available on various aspect of content analysis which is related to the analysis of library website in India. The literature focused on the evaluative criteria provided by various authors and prepared checkpoints. For instance, Al-qallaf and Ridha (2018) analyzed “the current state of academic library websites, based on the library websites evaluation criteria (L-WEC), which cover namely; design, navigation, web content, web-based library services and Web 2.0. The authors found that the majority of the academic users were born in the Google generation to have much affinity for web resources and services. Hence, it is incumbent upon the policymakers to create more millennial-friendly websites that provide easy and quick access to Web-based services and content-rich information”. Gayan and Das (2017) compared the “web content of national library websites of the South Asian region, covered 64 checkpoints into nine categories namely; general information, authority, resources, current awareness services, website design, content related query, search criteria, search rank, and web domain type. The study found that most of the libraries are yet to cop up with the latest web technologies available for providing better user-oriented services”.

Manjunatha (2016) evaluated “web content that covered only six main criteria namely; general information, library services, library collection, electronic resources, domain and display recognition, and links, search and retrieval interface. The findings show that half of the library websites will not provide date of updating, but shows the currency of the contents and most of the websites will not give membership details and library rules, but all special libraries website provides service of feedback, suggestion box, FAQ's, help menu and only two libraries are providing the list of printed journals”. Li and Ranaweera (2016) investigated the web-based library services in Sri Lanka University which cover eight main categories; “site description; currency; website aids and tools; library general information; library resources; library services; links to e-resources; and based on value-added services. The results show that academic library websites in Sri Lanka should focus more on adding new web-based library services in order to be more relevant and more compatible with constantly changing technology and ever growing demands of the users”.

A noteworthy study by Mohammed, et al. (2016) examined the content of the university library websites in Nigeria, “to determine their strength and weaknesses under five categories

namely; general information, physical collection, library services, e-resource, and links to free external e-resources. The authors found that the general information about library, service and their physical holdings were insufficient and also suggest about some improvement of librarians' skills for website development and add curriculum in library schools to include website development programs". Savitha (2016) analysed that "the contents available in deemed university library websites in Karnataka with five criteria, namely general feature; library collection; library service; e-resources and social networking tools for examining the websites. The author found that websites must be more informative and attractive and it should be easily captured the attention of library users and website browsers".

Jain (2016) evaluated "the innovative services of the library by cover six main categories namely; currency accuracy and update, content features, link to other resources, special collection, innovative Web 2.0 feature, and links and maintenance. He concluded that content and information are varying in every library website. It is essential to make the library website effective and more practical, the user's survey and feedback techniques should be employed, and it is necessary to periodically assess the contents and information of the library websites". Singh and Gautam (2016) investigated "the application of web-contents of the central university libraries, to covered ten main criteria namely; general information, library collection, link to e-collection, organization and structure, presentation, navigation and findability, maintenance and updated criteria, authority, downloads, and features & services. It was found that Jawaharlal Nehru University library website is best and South Asian University library website is the worst website".

Verma and Devi (2016) "evaluated the web content and design trends of library websites which cover only ten criteria namely; webpage size, navigation, website aids and tools, general information, library collection, e-resources, library services, value-added services, statement of responsibility, and Web 2.0 tools". The authors observed that all of the IIMs are familiar with Web 2.0 tools. But, not a single of the IIMs has RSS feed on their websites. It should be noted that all the links provided in the library web pages must be accessible. The library web pages must be maintained regularly and updated. Another similar study by Mahalakshmi (2015) explored "the content and trends in the design of home pages of university library websites, which covers twelve main criteria namely; general information, accessibility, and speed, navigational speed, authority and accuracy, currency, websites aids and tools, library general information, library collection, technical services, information on various sections, e-resources, and value-added services". She found that most of the library websites provide information on e-resources whereas they lack in providing the basic services offered by the respective libraries.

Lamani and Keshava (2015) evaluated "the homepage of university libraries, based on the criteria, namely; authority, purpose, coverage, currency, objectivity, accuracy, superstructure, graphics, use of colour, content, readability, page layout, hyperlinks, promotions, searching, and FAQ". The study indicated that the majority of libraries' homepages were compatible with all browsers and linked among the web resources, but there was no direct link to the home pages and no regular updates, current news, notice, administrative structures, asks a librarian's link and web OPAC's as well.

Sampath Kumar et al. (2015) analysed and compared "the quality contents of seven IITs library websites which covered four criteria, namely general information; information sources; web-based library services; and other information". The results of the study indicate

that the library authority needs to recognize skilled manpower, which would be responsible for the development of web-contents. Kumar and Bansal (2015) developed “comprehensive evaluation criteria for quality website and content of Indian Institute of Technology (IITs) library websites, based on the criteria such as homepage, site design, content design, and current trends. It was obtained that the website should be updated on a regular basis. If any new service or product is launched, it must be highlighted on the front page of the site”.

Another study by Haridasan and Uwesh (2014) wherein they evaluated “the web-contents of university library websites and developed criteria which cover the checklist namely; general information, nature of links, collection, services, social networking sites, application of Web 2.0 technologies. The results suggest that the majority of the university library websites provide an informative link to contacts, news and events and a few websites provide feedback, links to a mission statement, location, sitemap, and library tour and some good number of the libraries provide the library hours, library rules and membership”. Hasan (2014) identified “the usability of the University of Jordan's website, to cover four main criteria namely; navigation, design, content, and ease of use and communication. The author show that 28 most common usability problems related to lack of navigational support, ineffective search engine, inconsistency problems, inappropriate design of the menu, old content, incomplete information, difficult interaction with the website and lack of support for the Arabic language and suggested their weak areas which need to improve the design of their websites”.

Another similar study by Pareek and Gupta (2013) investigated “the study of library websites in Rajasthan and developed criteria which cover ten main categories namely; accessibility & speed, navigation, authority and accuracy, currency, website aid and tools, library general information, library resources, library collection, information on e-resources, library services and technical services, library sections, link to e-resources, value-added services, and language. The study concludes that the navigational strengths and weaknesses and to give recommendations for developing better websites and quality assessment studies”. Prakash (2013) emphasized the “information available in the library websites, which cover seven main criteria namely; general information, library resources, and services, accessibility, speed and navigation, aids and tools and currency, online library service, links to other information sources, value-added services. It was found that websites have irregular services and necessary to improve, user feedback help to enhance their websites more attractive and informative”. A notable study by Madhusudhan and Ahmed (2013) evaluated “multimedia features, content features and user-interface features of IIMs Library websites and uses a qualitative and quantitative evaluation, to cover four main criteria namely; technical description, multimedia features, library content features, and user-interface features. The study highlights how the features can open the door to librarians to explore the possibilities of communication, promotion, text responses and catalogue access via mobile technology with the help of library websites”. Swapna and Francis (2013) analysed that “the websites provide a lot of useful information to the users and also further improvement both in contents and management of the library”.

### **3. Objectives of the Study**

The main objective of the study is to compare the content features of library websites of Jawaharlal Nehru University (JNU), New Delhi and Banaras Hindu University (BHU), Varanasi in India, in particular to:

- a) Determine the different content features of the JNU and BHU library websites;
- b) Identify the criteria for content analysis of Library websites under study;
- c) Evaluate the content features of library websites with the help of specially identified criteria for verification of validity, reliability, and usefulness; and
- d) Compare the different content features of studied library websites and rank them based on features.

#### 4. Scope of the Study

The present study is confined to two top Central Universities in India. The selection of the sample was done on the basis of national ranking of National Institute Ranking Framework (NIRF) 2017, by Ministry of Human Resource Development, Govt. of India in Table 1.

**Table 1: List of Studied Central Universities in India**

S.No.	Central University	National Institute Ranking Framework(NIRF) 2017
1.	Jawaharlal Nehru University	2
2.	Banaras Hindu University	3

#### 5. Methodology

The present study adopted a manual evaluation method which covered both qualitative and quantitative data. A well-thought-out checklist was designed keeping in view the objectives, with the help of previous related literature checklists. The study aims to explore the web-based library content with the help of qualitative and quantitative evaluation features. Qualitative evaluation features covered descriptive information of the library websites, whereas Quantitative evaluation checkpoints covered; multimedia features, general features, library services features, library resources features, my library features, Web 2.0 / Library 2.0 features, currency, accuracy and relevance features, organization and structure features, link and maintenance features, user interface features, search features, and informative feedback and support features in library websites, which represented in the form of a table in MS words. The evaluation approach taken in the study is similar to Madhusudhan (2012) and Madhusudhan and Ahmed (2013) with major modifications.

#### 6. Data Analysis and Interpretation

The analysis of data was done during 25 April 2018 to 5 May 2018. The responses on the qualitative and quantitative features were received against the evaluation checklists. Every time a cell (i.e., specific features in the checklists) was checked (marked “√” for Yes and “×” for No), one point was assigned to each feature available in the library website under study. The score for a website is the total number of cells checked for that library web page.

##### 6.1. Qualitative Evaluation

The qualitative part contains 11 features that are related to the library websites, which serve as a recording device for descriptive data. The significant information is obtained from the homepage of the website (Table 2).

**Table 2: Descriptive Features**

S.No.	Descriptive Features	JNU	BHU
1	Library Name	√	√
2	Address	√	√
3	Type/Genre	Academic (ac)	Academic (ac)
4	Fax No.	√	√
5	Phone No.	√	√
6	E-mail	√	√
7	Plug ins required	Java script; php; CSS ; Adobe reader	CSS ; Adobe reader
8	Language: Hindi/ English	Both	English
9	Language of site content	Hindi; English and Urdu	Hindi and English
10	Level & Browser	Internet Explorer 10.0 and above	Internet Explorer 10.0 and above
11	Other	First leaf news/ Scroll notice board	×
<b>Total scores (Max.11)</b>		<b>11/11 (100%)</b>	<b>10/11 (90.9%)</b>

**Note:** √ = Yes; ×= No

Table 2 shows the qualitative features found in the JNU and BHU library websites. These common features like; library names, address, fax no, phone numbers, and Email ID appears on the home page of both the library websites. Verma and Devi (2016); Mahalakshmi (2015); Madhusudhan and Ahmed (2013) also mention these checkpoints in their article. The other features such as an academic network (.ac) and type of browser (IE 10.0) are again found common in both websites. In JNU Library website the language of the site is bilingual (English and Hindi) and content language is in trilingual (English, Hindi, and Urdu) whereas, the language of the BHU library website is only in an English version and the content of the site is bilingual (English and Hindi). Li Si and Ranaweera (2016); Khatri and Baheti (2013) also considered the language of the site and language of the content in their study. Moreover, the plug-ins in the JNU site includes (JavaScript, Php, CSS, and adobe acrobat reader) in contrast to BHU site has two plug-ins, such as: CSS and Adobe Acrobat reader. JNU Library websites take first leaf news feature and scroll notice but no such update has taken place in BHU library website. The qualitative analysis portion of the checklist doesn't give any numerical value, hence the values are not considered for the evaluation of JNU and BHU library websites for the final ranking. For more information, knowing the details of sites for browsing and contacting them is valuable.

## 6.2. Quantitative Evaluation

In this evaluation parts covered 170 dichotomous questions to the various features namely; multimedia feature, general feature, library services features, library resources features, my library features, Web/Library 2.0 features, currency accuracy and relevance features,

organisation and structure features, link and maintenance features, user interface features, search features and informative feedback and support features.

### 6.2.1. Multimedia Features

Multimedia is considered as an important aspect of any website that contain sound, video, animation, and/or images alongside text fall into the multimedia category. Visual design, good audio/video quality, high definition images tempt users to access the websites. The good multimedia features add to the aesthetics of a website. Table 3, depicts multimedia features, covering 18 checkpoints in various features namely; audio, video, animations/GIF and graphic/icon /image features.

**Table 3: Multimedia**

S.No.	Features	JNU	BHU
<b>Audio</b>			
1.	Audio contents	×	×
2.	Textual description of external audio files	×	×
3.	Audio icons clearly labelled	×	×
4.	Files size of external audio files	×	×
<b>Video</b>			
5.	Video contents	√	×
6.	Video icons clearly labelled	×	×
7.	Information about external video files	√	×
8.	Files size of external video files	×	×
<b>Animations/GIF files</b>			
9.	Animations/GIF feature available	√	×
10.	Animations/GIF used to substrate websites	√	√
11.	Animations/GIF files appropriate in the websites	√	√
12.	Animations/GIF file enhance the websites	√	√
13.	No disturbance of Animations/GIF files	√	√
<b>Graphic/Icon /Image</b>			
14.	Graphics/Image show the content	√	√
15.	Graphics/Image suitable to information content	√	√
16.	Icons/Image and other graphical representations are used constantly	√	√
17.	Proper textual information for external images	√	×
18.	Mentioned File size for external images	×	×
<b>Total scores (Max. 18)</b>		<b>11/18 (61%)</b>	<b>09/18 (50%)</b>

**Note:** √ = Yes; ×= No

Table 3 shows that animation/Graphics Interchange Format (GIF) files, graphics/icons/ image file are an important part of library websites rather than audio and video which scores very low in a survey. “GIF is a file extension for an often animated raster graphics file format commonly used for images on the web” (Whatis.com, 2018). Both JNU and BHU use the GIF and Image Feature to enhance their websites, and constantly appear in a suitable location, but both libraries do not provide image/ GIF files sizes. A similar study by Savitha (2016) found that “only image checkpoints scored 78% in seven universities library websites”, and Jayasundari and Jeyshankar (2014) found out that “all the 13 (100%) institute websites have designed with graphics and animations”. Similarly, Pareek and Gupta (2013) noticed that “52

% of the library websites have graphics (banner or library pictures)”. Total score, JNU covers a total of 61% criteria, and BHU covers 50%, as compared to the total score, JNU is in a much better position.

### 6.2.2. Library Content

"Content is the primary consideration in the evaluation of any referencing sources and the quality of the library website is determined mainly by its content. The quality of information relies on how information is being managed" (Konnur et al., 2010). Table 4 highlights as well as compared of general features of library websites of JNU and BHU.

**Table 4: General Features**

S. No.	Features	JNU	BHU
1.	Home	√	√
2.	Mission	√	×
3.	Staff Information	√	√
4.	Opening Detail	√	√
5.	Library rules and regulation	√	√
6.	News and events	√	×
7.	Contact Information	√	√
8.	Frequently Ask Questions	√	×
9.	Annual reports	√	×
10.	Floor map/ sitemap	√	×
11.	Newsletter	×	×
12.	Visitor number /Web counter	×	×
13.	Library history	√	√
14.	Library committee /Advisory committee	√	×
15.	Photo/ Video gallery	√	√
16.	Other information	√	√
<b>Total scores (Max. 16)</b>		<b>14/16 (87.5%)</b>	<b>08/16 (50%)</b>

**Note:** √ = Yes; ×= No

Table 4 reveals that both library websites have some common features namely, home, staff information, opening detail, rules and regulation, and contact information, whereas JNU library websites added some more features such as; mission statement, news and events, frequently ask questions (FAQ), annual reports, sitemap/ floor map, notice board, etc. Surprisingly, the visitor number/web counter features are not indicated in both the library websites, but both of them refer to the visitor number/web counter in their main websites, to confirm the fact that how active users visit the website. Similar study conducted by Li and Ranaweera (2016) found that “almost all university library websites in Sri Lanka, provide some common features such as; opening hour, staff directory, library rules and regulation, etc”. Furthermore, similar studies were conducted by (Ganaee, 2016; Verma and Devi, 2016), who have found “limited provision of such facilities”.

There are some other common features such as; library history, photo/video gallery are indicated in both library websites, whereas JNU library websites added some more facilities like library conference, alert service, contact us, website feedback and quick links-features etc., and it also mentions the motto of the library, visitor access timing, technical processing, cloakroom and lockers, location information, information about management section, library

policy, library statistics, and consultation membership, while BHU only covers institutional libraries.

The study is contrary to the findings of pre-study, “15.78% of the colleges provide staff details in their websites” (Mani et al., 2017), while the staff details in this study are 100%. JNU clearly mentions the mission statement of its library, while BHU doesn’t have. In another study, Panday (2016) found that “the mission statement feature was absent in their search”. Overall, JNU covers 14 out of 16, (87.5%) feature, whereas BHU covers only 08 out of 16, (50%). As a result, it was found that BHU library websites need to improve and add more features to enhance their website.

### 6.2.3. Library Services

This section addresses library services provided by university library websites to their patron. Library services may include new arrival; interlibrary loan (ILL) /document delivery service (DDS); plagiarism tools; Newspaper clippings; ask a librarian; etc. which are provided by the library via websites. Table 5 compares the web-based library services of JNU and BHU Library websites.

**Table 5: Library Services**

S.No.	Library Services	JNU	BHU
1.	New arrival list	√	×
2.	ILL/ DDS	√	√
3.	Information literacy	×	×
4.	Citation style tools	√	×
5.	Online institutional tutorials	×	×
6.	Information desk	√	×
7.	Anti-Plagiarism Checking	√	√
8.	Web Search tips	√	×
9.	Newspaper clippings	√	×
10.	Photo-copying service	√	×
11.	Ask a librarian service via email	√	×
12.	Ask a librarian service via call	√	×
13.	Ask a librarian service via Instant Message (chat)	×	×
14.	Ask a librarian service via online form	×	×
15.	Other Services	√	√
<b>Total scores (Max. 15)</b>		<b>11/15 (73.3%)</b>	<b>03/15 (20%)</b>

**Note:** √ = Yes; ×= No

Table 5 depicts plagiarism and Inter-Library Loan/ Document Delivery Service as a common service in both library websites, but some service as new arrival list, citation style tools, information desk, web search tips, newspaper clippings, photocopying services, ask a librarian service via email and call are provided by JNU. Furthermore, JNU Library website includes other services, such as the book requisition, important notifications, subscription form, download form and book indent form reference service, cyber library facilities and digital service.

Despite the fact, BHU lag behind JNU in providing some special services to its users. However, BHU has reprographic service as a prominent service mentioned on their library

website which JNU doesn't have. A study by Panneerselvam (2015) found that “100% libraries provide reprographic services and 87% libraries done interlibrary loan services and reference services to its users”. Here, we can infer that JNU though having the reprographic service in their library, which is not mentioned yet, it as an important feature of their library website. Another similar study by Verma and Devi<sup>45</sup> (2016) found that 75% IIM's offered Inter-Library Loan, 58.33% IIMs offered reprography services and 8.33% IIMs offered Document Delivery Service, newspaper clipping and citation management tools. Overall, JNU contains 11 (73.3%) of 15 library services, while BHU covers only 03 (20%) out of 15 services in its website. It was found that the BHU needs to improve the services of its library website.

#### 6.2.4. Library Resources

This section highlights web-based library resources enumerated by both JNU and BHU library websites. Table 6 lists some of the important e-resources and links as a checklist to ascertain which library website holds them in their respective website.

**Table 6: Library Resources**

S.No	Library Resources	JNU	BHU
1.	Links to electronic journals	√	√
2.	Links to Bibliographic databases	√	√
3.	Links to Subject guides	√	×
4.	Web resource portal (English language)	√	×
5.	Web resource portal (Hindi and Sanskrit language)	×	√
6.	Online Public Access Catalogue (OPAC)	√	√
7.	Links to Union Catalogue	√	√
8.	Rare collections (special journal)	√	√
9.	E-theses and E-dissertations	√	×
10.	Links to Open Access (OA) Resources	√	√
11.	Links to other reference sites	√	√
12.	Links to electronic books	√	√
13.	Links to Institutional Repository (IR)	√	√
14.	Links to bound volumes	√	×
15.	Links to search engines	√	√
16.	Links for Digital library Consortia (e.g. INDEST-AICTE/UGC-Infonet Digital Library Consortia)	√	×
17.	Other Library collections	√	×
18.	Book Recommendation	√	×
19.	Privacy policy	×	×
20.	Links to Librarian's personal homepage	√	×
21.	Webmaster address	×	√
22.	Promotional materials for the library	√	×
23.	Services for faculty member	×	×
24.	Book reviews and other resources	√	×
25.	Recruitment cells	×	×
26.	Links to specific subject	×	×
27.	Information for Disabled users	√	×
28.	Remote Access Information	√	×

<b>Total scores (Max. 28)</b>	<b>21/28 (75%)</b>	<b>12/28 (42.8%)</b>
-------------------------------	------------------------	--------------------------

**Note:** √ = Yes; × = No

Table 6 shows some common resources such as; links to e-journals, links to bibliography database, Web OPAC, links to union catalogue, rare collection, links to open access (OA) resources, links to other references sites, links to electronic books, links to institutional repository (IR), links to search engines are represent in both JNU and BHU library websites, whereas some feature like subject guide, web resources portal (English language), electronic theses and dissertation, links to back/bound volume and links for library consortia appear only in JNU websites. However, BHU library website has a unique web resource portal in Hindi and Sanskrit language. The prominent feature of the JNU library website is that it is facilitated with World Bank e-library/ open data, access to ACM digital library, access to ACH Digital archive and JNU faculty publication. Further, JNU also provided some other features like government publication, covered open government data platform, linguistic survey of IMF e-library, people's linguistic survey of India, IMF e-library data, IMF e-library, Gazetteers of more than 350 national, state and district level and some special collection and also some foreign language collections (French, German, Portuguesa, Russian and Spanish) in addition to that it covers some oriental languages like Urdu, Arabic, Persian, and other Indian languages. JNU also provide donation and gifted book information on their websites.

Table 6 reveals some other related content such as book recommendation, link to the librarian's homepage, library promotion material, book reviews and other web resources, information for disabled users, and remote access information etc. that appears in JNU website, while BHU is not, but BHU has only one feature i.e. the webmaster which does not appear in JNU websites. In contrast to the study websites Ganaee and Rafiq (2016), in their study on university library websites found that “the most facilities feature were for a ‘jobs’ page”. Overall figure, JNU, 75% criteria, while BHU covered 42.8% which shows major difference between the resources of both libraries.

### 6.2.5. My Library

According to Liu, (2008) “My Library Space is a one-stop information environment for an individual user and provides a combined set of information technology tools for use. Further, some library websites provide personalized library spaces, named ‘my library’, ‘my personal library’, or ‘my search space’, aggregating into one spot access to library user accounts, course reserve materials, library alerts, databases, citation tools, and/or search preferences/results”. My library is a unique feature of JNU library websites. It is fully user-oriented features which are represented in table 7.

**Table 7: My Library**

<b>S.No.</b>	<b>My Library Features</b>	<b>JNU</b>	<b>BHU</b>
1.	My library records	√	×
2.	Links for Renew Books	√	×
3.	Links for Reserve A Book	√	×
4.	Latest information for users	√	×
5.	The article of users Interest	√	×
6.	Users books location	√	×
7.	User preference books/journals	√	×
8.	Detail information related to Library membership cards	√	×
9.	Research guides and tools	√	×
10.	Suggestion and recommendation for New E-Books/E-Journals	√	×

	and database		
11.	Visitors chart	√	×
12.	Assistance in recovering full-text documents	√	×
13.	List of Digital lecture	√	×
<b>Total scores (Max.13)</b>		<b>13/13 (100%)</b>	<b>0/13 (0%)</b>

**Note:** √ = Yes; × = No

Table 7 shows that the JNU covers all feature of my library. My Library record features are mainly created for the user only, with the help of membership ID and password, user want to see all the transaction record (like which book issues, which book due and how much fine generated). Some features like; links for renew books, links for reserve a book, latest information for a user, and locate your book was in process. Some other features such as (user interest, user priority books, suggestions and recommendation for new e-books and assistance in recovering full-text documents) are provided by leaving the user's query through email. Visitors chart feature provide user list who visit in a library and digital reading list provide a facility of a searching lecture from the repository. By contrast sharply, Ganaee (2016); Karak (2015); Kaushik (2015); Qutab and Mahmood (2009) found that “the fine accrued, renewal book/ materials, online book reservation, and membership detail feature but they did not provide a space for user query in one platform”. The overall figure, JNU cover 100% but BHU scores zero in providing such facilities in their library websites.

#### 6.2.6. Web/Library 2.0

“Web/Library 2.0 tools are most frequently used by the people. With it, the dissemination of information gets easier for a great number of audiences” (Devi and Verma, 2017). Web2.0 tools covered blogs, RSS feeds, Wikipedia, social networking sites (SNS), Twitter, Facebook, LinkedIn, Google plus, YouTube and many more mentioned in table 8.

**Table 8: Web/Library 2.0**

S.No.	Web/Library 2.0 Features	JNU	BHU
1.	Blogs	√	√
2.	RSS Feeds	√	√
3.	Wikipedia	×	√
4.	Social Networking Sites (SNS)	√	×
5.	Google plus	√	×
6.	Social Tagging and Bookmarking	×	×
7.	File sharing	×	×
8.	Video sharing	×	×
9.	Calendaring	×	×
10.	Image sharing	×	×
11.	Library virtual tour	×	×
12.	QR code for mobile phone	×	×
13.	Folksonomies	×	×
14.	Collaborative authoring	×	×
15.	Weather detail	×	×
16.	Podcasts	×	×
17.	YouTube	√	√
18.	Mobile Library icon	×	√
19.	PlumX Metric	√	×
20.	Instant Message	×	×

<b>Total Scores (Max. 20)</b>	<b>06/20 (30%)</b>	<b>05/20 (25%)</b>
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**Note:** √ = Yes; × = No

Table 8 depicts that the 20 web/ library 2.0 tools evaluated. Surprisingly, only Blogs, RSS Feeds, and YouTube were common features covered by both Library websites. BHU provide mobile library and Wikipedia whereas JNU provide Google+ and social networking sites (SNS) features but both the websites don't use chat/ IM services. Haridasan and Uwesh (2014) revealed that “only three libraries have deployed one or more web/library 2.0 technologies, RSS Feeds and social networking sites are the most used services. The libraries should use Web/Library 2.0 applications such as social networking sites like Facebook, Twitter, LinkedIn and RSS feed to promote their websites”. The study by Xu et al (2009) summarized the “extent of specific Web 2.0 tools being implemented by the 34 academic libraries found that Instant Message (IM) seems to have been adopted most frequently, then Blogs’ popularity as only second to IM and RSS is third in ranking. The reason behind its popularity may be because it can easily be implemented in reference services to replace traditional methods like email or telephone. With IM, librarians and users would not only communicate with each other but could also keep a script of their exchanges if they so wish. In addition, IM offers synchronous communication whereas email does not”.

“PlumX metrics provide insights into the ways people interact with individual pieces of research output (articles, conference proceedings, book chapters, and many more) in the online environment. These metrics are divided into five parts namely, usages; captures; mentions; social media; and citations, to help make sense of hugs of data involved and to enable analysis by comparing like with like” (Plumanalytics, 2018). This is a unique feature which provided by JNU as it helps the user to share their views, information and also their research work. The overall figures, JNU cover 30% and BHU 25% both libraries need to adopt more Web 2.0 feature to enhance their service.

### 6.2.7. Currency, Accuracy, and Relevance

Currency means the age of the text (Jayasundari and Jeyshankar, 2014). According to Konnur, et al., (2010) “currency refers to the timeliness of information and generally refers to the information content to get the information source and the correctness of the source of information”. Table 9 tests currency, accuracy, and relevancy of JNU and BHU library websites against a well-designed checklist.

**Table 9: Currency, Accuracy and Relevance**

S.No.	Currency, Accuracy and Relevance Features	JNU	BHU
1.	All links relevant to the web page	√	√
2.	All links appropriate to the reference desk	√	√
3.	Copyright mentions	√	√
4.	Last updated information	√	√
5.	Each page of the site include information about the date of the last update	√	×
6.	Any indication of last updated/revised of the page	√	×
7.	Any official logo of the organization present on the site	√	√
8.	Official logo links to the home pages	√	×
9.	No grammatical or spelling errors found in the website	×	√
10.	links to other credible websites	√	√

<b>Total Scores (Max. 10)</b>	<b>09/10 (90%)</b>	<b>07/10 (70%)</b>
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**Note:** √ = Yes; ×= No

It is observed from Table 9 that the presentation of all links was relevant and appropriate to the reference desk, and it also ensures that the links should be still active, that why it's should be checked regularly. "Copyright in relation to electronic information is a complex area and its general considerations are beyond the scope of this research work. However, one consideration in terms of evaluation is the availability of copyright information" (Konnur, et al , 2010). The copyright status and the last update provided by both libraries, but the BHU library have not updated their website recently. Another similar study by Qutab and Mahmood (2009) examined that "the copyright information was provided by 85 percent of the libraries". However, only 16 percent of the library's web pages showed the last update, which was not less than six months earlier.

The "accuracy of the information sources provided on the net should be judged by considering the following factors: is the information reliable and error-free: is there an editor or someone who check the information: but currently no web standards exist to ensure accuracy"(Khan and Raju, 2013). There is no grammatical error and spelling mistake in BHU library websites, while JNU is. BHU Library website's homepage is not connected to the official logo, and information such as; last updated about the webpage and web content has not been displayed well. The overall figure, JNU score 90% but BHU covers 70% of the criteria.

## 6.2.8. Organization and Structure

"Organization is an important factor that should be done in such a fashion that each web page will be independent of the other. Proper linking must be maintained so that the user can have a provision to come back again to any one of the earlier pages"(Madhusudhan, 2012). Structure criteria include the size, colour, accessibility from different web browsers, image/icon/graphics present in the webpage, content organization, sitemap and principle arrangement. The basic principle of arrangement, related to two distinct matter, "first principle of provenance, is that archives should be kept according to their sources and second original order, it should kept in the order originally imposed on them" (Schellenberg, 1961). "Traditionally the archival principles of provenance and original order are enacted through hierarchical arrangement and description, facilitating intellectual and physical access and the preservation of context" (Higgins et. al. 2014). Here in the web, we can arrange the contents according to user-generated requirement and usability tests to ascertain the importance of any feature and its position on the website. The more accessed feature must be more accessible. Some important organisational and structural points are mentioned in table 10.

**Table 10: Organization and Structure**

<b>S.No.</b>	<b>Organization and Structure</b>	<b>JNU</b>	<b>BHU</b>
1.	Site accessible from different web browsers	√	√
2.	Is the site having font size features?	√	×
3.	Is the site having font colour features?	√	×
4.	When the web page loads, all the graphics, images, and icons are present	√	√
5.	Web Content arranged according to chronological, alphabetical, subject and numerical order	×	×
6.	Organization of a resource is appropriate	√	√

7.	A principle of arrangement obvious to the patron	√	√
8.	Table of contents (TOC) or floor map or sitemap present on the site home page	√	×
9.	Do not require proprietary software or password to access information	√	√
10.	The actual coverage matches with the proposed mission	√	×
11.	Areas and coverage are aligned with the needs of users	√	×
12.	Is the subject matter coverage complete?	√	×
13.	Statement of the proposed audience is mentioned in the site	√	√
14.	The terminology used is familiar to the proposed audience	√	√
15.	Visitor numbers/lists/Charts	√	×
<b>Total Scores (Max.15)</b>		<b>14/15 (93.3%)</b>	<b>7/15 (46.7%)</b>

**Note:** √ = Yes; ×= No

Table 10 describe that both the study websites have acquired from various web browsers and found some common features as; loading graphics/image/icon/ file on home pages, an organization of a resource is appropriate, the principle of arrangement obvious to the patron and seek information without any proprietary software and password. JNU library website has provided font size and colour features and sitemap/floor map/table of content information. Moreover, it was found that the JNU library website has its motto and objective in their website and according to their motto, JNU satisfied their user with a big smile in his/her face so it's area and coverage of subject matter exhaustive. Both libraries have mentioned the statement of the proposed audience and used terminology which is familiar to the proposed audience. But, only JNU provide visitors chart, visitor history and also indicates the site popularity. Overall figures, JNU cover 93.3% (14 out of 15) criteria whereas BHU covers only 46.7% (7 out of 15). Here also BHU need to improve their website.

#### 6.2.9. Links and Maintenance:

“Maintenance of the library websites is an on-going process and a tedious job for the webmaster. A factor to be considered is the currency of all hyperlinks” (Madhusudhan and Ahmed, 2013). Table11 Links and Maintenance checkpoints are given and tested for both the library websites.

**Table 11: Links and Maintenance**

S.No.	Links and Maintenance	JNU	BHU
1.	Describe the link in an appropriate way	√	√
2.	Links clearly labelled	√	√
3.	Link to move to the top of page	√	×
4.	There any dead links/empty links	√	√
5.	Reliability of internal links	√	√
6.	Is the responsibility of side display given?	√	√
7.	A library has feedback/comment facility available.	√	×
<b>Total Scores (Max. 07)</b>		<b>07/07 (100%)</b>	<b>05/07 (71.4%)</b>

**Note:** √ = Yes; ×= No

Table 11 shows that both websites have the same features as; link in an appropriate way, links clearly labelled, dead links / empty links, the reliability of internal links and side display given. JNU added some more features such as links to move to the top page and provide

feedback/ comment form, while BHU doesn't have such features. Feedback form plays an important role in maintaining a website with the fruitful suggestion of the patron and also it's a good way to connect from the librarian to their patron and vice versa. Overall statistics, JNU covered 100% (07/07) of the criteria, whereas in BHU 71.4% (05/07) were included. BHU need to add feedback facility to upgrade its website.

#### 6.2.10. User Interface

“User interface is the area in which criteria for internet-based information sources differ most from other sources. A user interface is a system by which users interact with a machine. The user interface includes hardware (physical) and software (logical) components. User interfaces exist for various systems and provide a means of input (allowing the user to manipulate a system) and output (allowing the system to indicate the effects of the users' manipulation)”(Madhusudhan and Ahmed, 2013). In the user interface feature covered such as; navigational aids; every page has a link to return the homepage; under construction page; any type of information (text, symbol, image etc.); and usability features etc. are clearly distinguished. These criteria are shown in table 12.

**Table 12: User Interface Features**

S.No.	User Interface Features	JNU	BHU
1.	Navigation Aids are clearly labelled	√	√
2.	Is a way of coming back to the home page for each page of the site	√	×
3.	Any under construction page	×	×
4.	Any types of information, for instance, text, symbols, graphics, image etc. clearly famed from each other features	√	√
5.	Aesthetic presence is visually likable not messy or busy	√	√
6.	Does it include links to the page title and a simple page identity	√	√
7.	It is easy to use all the tasks provided by the system	√	√
8.	It's easy to assess the use of websites to get the desired work	√	√
9.	Web pages load faster	√	√
<b>Total Scores (Max. 09)</b>		<b>08/09 (88.9%)</b>	<b>07/09 (77.8%)</b>

**Note:** √ = Yes; ×= No

Table12 indicates that all navigational aids are clearly labelled. There is no under construction page in both the library websites. The symbols, graphics, and text are clearly distinguished; the appearance of the webpage is clearly defined in both the sites. The homepage link to library website and back to the parental site is not functional in BHU. “Usability evaluation has become one of the most critical parts of the design and development of websites”(Inal, 2018). Table 12 indicates that the aesthetical design and visually appealing with consistent page heading; easy to utilize all functions provided by the system; faster page loading were found in both of the library websites. The overall figure, JNU covered 88.9 percent whereas BHU scores 77.8 percent.

#### 6.2.11. Searching Features

“Searching is the main goal of the users on the website is to find the information as quickly as possible” (Walia and Gupta, 2013). The searching feature includes keyword searching; exact

match searching; federated searching; truncation searching; Boolean searching; adjacent searching and weighted searching and many more as mentioned in table 13.

**Table 13: Searching**

S.No.	Searching Features	JNU	BHU
1.	Search feature or search engine is available	√	√
2.	Keyword / Title / Author search	√	√
3.	Exact-match search	×	√
4.	Federated Search	√	×
5.	Truncation search	√	√
6.	Boolean search	√	√
7.	Adjacent search	×	×
8.	Weighted Search	×	×
9.	Many options to search on their home pages such as A-Z lists or general search	√	×
10.	Display search result in an understandable format	√	√
11.	A user can manipulate search results	√	√
12.	Search guidelines clearly mention what to do	√	√
<b>Total Scores (Max. 12)</b>		<b>09/12 (75%)</b>	<b>08/12 (66.7%)</b>

**Note:** √ = Yes; × = No

Table 13 shows that both of the library websites provide search feature; keyword/title/ author searching; truncation search; Boolean operator; display search result in understandable format; and search instruction clearly mention, whereas no one use adjacent operator and weighted searching tools but BHU provided exact match searching feature. Similarly, Kaushik (2015) found that “a large number of NIT libraries websites are suffering from currency, reliability and search interface which are essential criteria for maintaining the quality of the library websites. Furthermore, Boolean search facilities are not available on any NITs and only one out of twenty-eight NITs facilitate federated search”. The overall figure, JNU covers 09 (75%) out of 12 criteria and BHU cover 08 (66.7%) out of 12 criteria.

### 6.2.12. Informative Feedback and Support

Informative feedback and support features are the last criteria and here include 7 checkpoints such as; status related to messages; error information; the system allows the user to correct the error; help/feedback feature; how to use help/ feedback feature and exit; system instruction; and instructions clearly promote and indicate what to do etc. are highlighted in table 14.

**Table 14: Informative Feedback and Support**

S.No.	Particulars	JNU	BHU
1.	Status message present to indicate that the system is being or has been done	√	√
2.	If errors occur when the system notifies the user	√	√
3.	System allow the user to correct the errors	√	√
4.	Support / Feedback feature is available	√	×
5.	Explains the actions in relation to what the system is currently doing while using support/feedback features.	√	×
6.	Instructions clearly promote and indicate what to do	√	×
7.	Instructions are completely worded on the site	√	×

<b>Total Scores (Max. 07)</b>	<b>07/07 (100%)</b>	<b>03/07 (42.85%)</b>
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**Note:** √ = Yes; ×= No

Table 14 show that both library websites provide the system status message; system error information and allow the user to correct system error. JNU facilitated help/ feedback feature and how to access and exit. Moreover, using feedback/help features; clear instructions promote and indicate throughout the site. The similar study conducted by Aharony (2012) investigated that “the most frequent website aid tool was the site search function in 2010, while in 2000 the feedback link and the site search function were more frequent”. Overall figures, JNU covered the 100% (07/07) criteria, whereas BHU only contained 37.5% (03/07). BHU needs to add some other feature like feedbacks/ help/ suggestion/ contact us form so that patron should give their fruitful suggestion. This will help make their websites attractive and more user-friendly

## 7. Total Score and a Rating Scale of the Study Websites

The total scores of University Library websites under study have been presented in Table 15, which is based on the previous tables from table 03 to table 14.

**Table 15: Total Score of the Websites**

S.No.	Particulars	JNU	BHU
1.	Multimedia Features (out of 18)	11	09
2.	General Information Features (out of 16)	14	08
3.	Library Services Features (out of 15)	11	03
4.	Library resources Features (out of 28)	21	12
5.	My Library Features (out of 13)	13	00
6.	Web2.0 Features (out of 20)	06	05
7.	Currency, Accuracy and Relevance Features (out of 10)	09	07
8.	Organization and Structure Features (out of 15)	14	07
9.	Links and Maintenance Audience Features (out of 07)	07	05
10.	User- Interface Features (out of 09)	08	07
11.	Search Features (out of 12)	09	08
12.	Informative, Feedback and support Features (out of 07)	07	03
<b>Scores Maximum (170)</b>		<b>128 (75.29%) Above Average</b>	<b>74 (43.52%) Average</b>

The five-point rating scale was designed based on the total number of checkpoints received by the University Library websites from total 170 quantitative assessment points. The range for the rating scale, (i) 137-170 Excellent, (ii) 103-136 Above Average, (iii) 69-102 Average, (iv) 35-68 Below Average, and (v) 01-34 Needs Improvement.

Table 15 reveal that the JNU overall score 128 out of 170 (75.29%). In the above-ranking chart, JNU comes under 103-136 criteria that mean, JNU websites is above average and BHU overall score 74 out of 170 (43.52 %) its lie on 69-102 that means it's an average website. So it's clear that JNU library websites are better than BHU library websites, so it needs to improve more and more.

## 8. Conclusion

The study evaluated the qualitative characteristics and quantitative characteristics of multimedia features; general information features; features of library service; library resources features; my library; Web 2.0/library 2.0 features; currency, accuracy and relevance features; organization and structure features; link and maintenance features; user interface features; search features and informative feedback and support features of JNU and BHU library websites. The qualitative findings show that BHU doesn't use scrolling notice and first leaf news tool, whereas JNU has used these features which attract patron to notice that information is available on the website.

The quantitative finding mentions that the audio/visual content features and file sizes are not appearing in both library websites, furthermore, newsletter and web counter feature has not found in general features in the study of library websites. Some important features in library service like information literacy, ask a librarian service via online form/Chat (IM), SDI, indexing and abstracting services and online institutional tutorial have been found missing in both the library websites. While handbooks, micro documents, privacy policy, recruitment cell, and link of special subject are not available in library resources of both library websites. The study also reveals that both library websites need to add more user-friendly web 2.0 features (like tagging, sharing, calendaring, chatting /Instant messaging, QR codes, Virtual tour and many more) to enhance the quality, thereby, to bridge the gap between library patron and libraries.

The aesthetic appearance of any website improves visitor engagement and user stickiness. Here, it was observed that the JNU Library home website is more attractive in appearance as compared to BHU library website. Some features that are more appealing in JNU website are; navigation, white space, and textual content. Moreover, in both the websites it was found that the content was not organized in chronological, numerical and alphabetical order. In search features weighted search and adjacent operator were found missing. The extent of the study has been limited to two top central universities, which are listed in the NIRF ranking 2017 and the use of manual evaluation technique for data collection has also been limited. Based on the result, both libraries should have a motto to provide information within a single click, without wasting user valuable time. Library websites should be more users friendly, interactive and effective after filling that lacuna which is found in this study. Moreover, because library is essential for users so librarian should always update their information, remove dead links, eye-catching appearance, easily navigation and easily search facility.

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