Evaluation of Library Websites of IITs in India based on Kano's Model - A Preliminary Study

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ABSTRACT: *The quality of library websites of IITs in India have been assessed by using three main categories viz. 'E-Resources', 'Services', and 'Web-centric' aspects. The study extends Kano's model to LIS application area at micro level by visualizing three quality levels within a particular information category covering various features. 'E-resources' include sub categories like e-books, e-journals, e-thesis, and online databases etc., 'Services' contain SDI, OPAC, Document delivery/ Interlibrary loan etc., and 'Web-centric' aspects include aesthetic appearance of home page, content presentation, ease of use, search process in websites and other navigational aspects etc. The objectives of the study are to systematically examine the library websites features of IITs based on Kano's Model, and to assess the quality level of Library websites of IITs based on scores obtained by specific features presence as checkpoints. The findings reveal that Mumbai tops the list with 1st rank (40 scores) followed by Delhi (32), Gandhinagar (32) with 2nd rank each, and Bhubaneswar (28) and Kanpur (28) with 3rd rank. The trailing IITs pertain to Guwahati, Ropar, Mandi, and Roorkee. The lowest rank i.e. 10th is shared by Indore. Category wise analysis of overall score of all IITs indicate that although the 'e-Resources are rich and 'Web-centric aspect' features are well planned and established, yet there seems to be a lack of provision of effective 'Services' while accessing the desired services features. It is concluded that the findings of this study would be useful to the web designers and Library & Information science professionals who need to be aware about the implications of the quality features characteristics.*

Keywords: Website Features, Quality Assessment, IIT, E-resources, E-services, Web-centric Aspects, Library Websites

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1. Introduction

There is a lot of published literature on evaluation of library websites with the purpose of improving their quality. These include qualitative, quantitative, theoretical, and empirical studies (Dix, Abowd, & Finlay, 1993; Haak et.al, 2004). Some papers (Allen,

2002; Nielson, 2003) include usability, and usefulness as evaluation criteria. A variety of indicators and check points have been suggested by various authors but there is no universal agreement so far in this regard. At this juncture, however, a reference is hereby made of Kano's model (1984) of quality which ''identifies and distinguishes features according to three levels of quality dimensions viz. (i) 'Basic' or 'Expected' features taken for granted which should support expected needs of users (ii) 'Normal' features supporting different platforms and links to related material, and (iii) 'Excited' features which makes users delighted about the website, things which they do not expect but excite if they are there and generate loyalty. It emphasises that design of a website is of great importance in absence of face-to-face human interaction where service adjustments in terms of verbal and non-verbal (body language) is not possible''.

With the above background, it is intended to assess the quality of library websites of IITs (deemed universities) in India as academic institutions. For this purpose three main categories viz. 'E-Resources', 'Services', and 'Web-centric' aspects of respective institutions websites have been taken in to account. While the categories 'E-resources' and 'Services' relate to information architecture domain, Web-centric category is concerned more with the design aspects of the website. Further these have been evaluated at three levels based on Kano's model each with respect to presence or absence of sub-categories under each main category.

For example for 'E-resources' sub categories like e-books, e-journals, e-thesis, and online databases etc. are covered, 'Services' include SDI, OPAC, Document delivery/ Interlibrary loan etc., and 'Web-centric' features would cover aesthetic appearance of home page, content presentation, ease of use, search process in websites and other navigational aspects etc. Users are dissatisfied if the 'Expected or Basic' features are not there in website. Further web designers will be aware that these features do not serve any purpose by merely being in place, but 'Normal' features can only facilitate user's task performance and satisfy their perceived needs to make website more relevant and useful. Finally, to satisfy users latent needs, building their loyalty, motivating users and ensuring them to stay connected more features are required under 'Exciting' level of quality. This would be an additional advantage in chalking out a website management strategy in this competitive web environment.

2. Kano's Model and Quality of Websites

Noriaki Kano developed a model to illustrate how customers perceive quality. The Kano Model is a product or service development theory that helps you to determine which features you may want to include in a product or service to improve customer satisfaction. It continues to be a critical element found in the front end of Product and Service Development.The model is based around the level of achievement compared to the level of customer satisfaction. Product features are divided into three distinct categories as mentioned in Sec 1. It describes the relationship between customer satisfaction and performance of a product or service and varies with the three categories. 'Basic' quality should not be presumed as below standard, rather it implies that the user does not care much about the product or service. The word 'Normal' is more concerned with performance quality i.e. anything which can be objectively tested and measured compared with competition. Lastly the 'Excitement' quality means some advanced and new features to maximise customer satisfaction. With the growing importance of e-resources, and services, the need to identify the web design features for its full potential by the users is very important. Kano's model gives us a theoretical framework to know the distinguished features of websites as quality dimension subsets. The present study extends Kano's model not only to LIS application area but also to micro level by visualizing three quality levels within a particular information category covering various features. For this purpose three main categories viz. E-resources, Services, and Web-centric aspects have been taken in to consideration. This selection criteria is somewhat based on findings of Calvert and Hernon (1997, p. 412; cited in Praditteera, 2001) who report that "library quality revolves around information resources, environment in which services are provided, staff delivering services, equipment by which process of service delivery is facilitated and paying attention to changing needs of users, i.e. constant users' need assessment to adapt services as a whole to their demands''.

3. Objectives

(i) To systematically examine the library websites features of IITs based on Kano's Model.

(ii) To assess the quality level of Library websites of IITs based on scores obtained by specific features presence as checkpoints.

4. Methodology and Data Collection

All the websites of IIT libraries were visited during 14-30 Aug, 2015 to know the frequent and common information categories

along with the features of the same. Based on three main categories viz. E-resources, Services, and Web-centric aspects, various sub categories were identified. These are: e-books, e-journals, e-thesis, institutional repositories, Multimedia, online databases under E-resources; Document Delivery/Inter library loan, E-reference service/Help/Info desk, SDI Service (e.g. My Library), OPAC/Web-OPAC, Search facility, and Social network under Services. Lastly the Web-centric features cover Aesthetic appearance, Content representation, Easy to use, Efficiency, Navigation, and Search Process. Further, at micro level various features under each level i.e. 'Basic', 'Normal', and 'Excited' were also identified by actually checking the respective websites. These features have been specified in Tables 1, 2 and 3 for three main categories respectively. Some of the features were only available on intranet, so the same could not be verified and thus have not been taken in counting scores. For presence of a particular feature the mark 'Y' is given whereas 'N' denotes its absence. Data thus collected have been tabulated in Tables 4, 5, and 6 and these three main tables have been sub-divided in to two tables each taking 7 and 8 IITs respectively

Sub-categories	**Basic features(L1)**	**Normal features(L2)**	**Excited/Advanced features(L3)**
e-books	Providing information through clear mechanism	Availability of Preview/TOC/ alphabetical listing	Sharing and managing new arrivals with customised subject needs Additional related links(referral links)
e-journals	Providing information through clear mechanism including current journals	Availability of e-journals with diff types and status All breakups like open source or subscribed or other status	Complete coverage (in terms of chronology)Novelty and interesting information
e-thesis	Accessibility and availability of list browsing	Provision of searching by various elements like researcher, guide, title, subject, year etc. Clear indication of facilities and rights for various types of users	Seamless downloading for users
Institutional repositories	Accessibility and availability of list for browsing	Offering all document management functionalities Containing a wide range of digital objects like image, sound, video files, and text	Mechanisms for federating with other local and global repositories, OAIPMH
Multimedia	Accessing List of audio/ video CDs in helpful sequence	Availability of equipped stations for using (viewing and listening) audio visual materials	Facility for downloading & sharing video clips of lectures delivered by renowned authors/teachers for students/researchers benefit apart from restricted access
Online databases	Accessibility and availability of list for browsing	Number and types of existing subscribed databases including open sources	Offering online guides and tutorials

Table 1. Description of Quality level checkpoints for E-Resources category

under each main table i.e. Tables 4(a), 4(b), Tables 5(a), 5(b), and Tables 6(a), 6(b). L1, L2, and L3 represent three levels of checkpoints score after counting number of 'Y's under each main category pertaining to particular IIT. It may be noted that the features specified here have been identified after carefully browsing the websites from a librarian point of view and are illustrative in nature. So, there may be more features also to qualify under the scope of various sub-categories of E-resources, Services, and Web-centric aspects. An attempt has been made to cover some of the very common and frequently used but typical features under each level.

Sub-categories	**Basic features(L1)**	**Normal features(L2)**	**Excited features(L3)**
Document Delivery/Inter library loan	Clear status of availability of books/documents in the resources (collection) of visited library website	Active links of referred sources with status, access and availability terms & conditions	Ease of borrowing books and documents e.g. interactive and online feedback system
E-reference service/Help/ Info desk	Contact details and FAQ	Existence of general services such as e-mail	Provision of other useful links like Mobile app
SDI Service (e.g. My Library)	Providing information through clear mechanism	Providing Circulation (availability of books) and reservation status	RSS Feeds, Alerts, Remote access
OPAC/Web-OPAC	All types of documents to be included	Seamless access and clear indication of status of availability w.r.t open source or subscribed with rights for full text access etc.	24X7 facility
Search Facility	Simple (keyword and free term) search and browsing	Advanced search (Boolean, proximity etc)	Saved records management including sharing, e-mail, location, and status of availability of record in libraryFederated and single window search facility
Social network	Facility of library's blog	Chat facility with librarian/ Library staff in working hours	Instant messaging services Promoting Library 2.0 as user-centered virtual community with multimedia presence

Table 2. Description of Quality level checkpoints for Services category

Sub-categories	**Basic features(L1)**	**Normal features(L2)**	**Excited features(L3)**
Aesthetic appearance	Home page scrolling does not distract visual appeal and is helpful	Appearance is visually appealing and not cluttered	Attractive photo gallery for library sections/ features
Content Presentation	Consistent page headings and associated links for easy page recognition	Clearly identify changes in the natural language of a document's text and any text	'Contact information' is accessible from every page

		equivalents (e.g., captions).	
Easy to use	Provide information about the general layout of a site (e.g., a site map or table of contents).	User-friendly interface) Findability (ease of finding items in the web site)'Undo' or 'back' function is easy and user-input is not lost with the 'back' button While interacting whether there is clear indication for visited and non-visited links by using colour code	Helping users find and locate needed information Page loading/information retrieval in progress conveys accurate status messages.
Efficiency	Pages load faster – speed is important	Downloading process does not lead to 'hang' situation and time out feature is clearly specified.	Increasing browsing efficiency by adopting new techniques e.g. icons or symbols for quick identification of items
Navigation	Multiple sections, categories or sub-categories are clearly and visually defined with category headings separated visually from the sub-categories, Navigation mechanisms are used in a consistent manner	Correct navigation titles are used for describing linked page with a clear knowledge of what the user is going to get	All heading elements are clickable links while using multiple sections/ categories in navigation including drop-down menu
Search Process	Availability of basic search function in OPAC/Web-OPAC	Enable different types of searches for different skill levels and preferences including A-Z list and advanced search	A guided tour for various types and strategy of searches with examples before performing the required search. One stop search for catalogues, article indexes and databases on homepage Single window search.

Table 3. Description of Quality level checkpoints for Web-centric category

IITs	**Bhubaneswar**			**Chennai**			**Delhi**			**Gandhinagar**			**Guwahati**			**Hyderabad**			**Indore**			**Jodhpur**		
Levels	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**
E-Books	N	N	N	IB	IB	IB	IB	IB	IB	N	N	N	Y	N	N	Y	Y	N	Y	Y	N	Y	Y	Y
E-Journals	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	Y
E-thesis	N	N	N	Y	Y	Y	Y	Y	Y	Y	IB	IB	N	N	N	N	N	N	N	N	N	N	N	N
Institutional Resposi-tory	N	N	N	Y	N	N	Y	N	N	IB	IB	IB	N	N	N	IB	IB	IB	N	N	N	IB	IB	IB
Multi-media	Y	N	N	Y	N	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Online databases	Y	Y	N	Y	N	N	Y	N	N	Y	Y	N	Y	Y	IB	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total Score	**3**	**2**	**1**	**5**	**1**	**1**	**5**	**1**	**1**	**4**	**2**	**1**	**3**	**2**	**0**	**2**	**2**	**1**	**3**	**2**	**1**	**3**	**3**	**3**

IB = Intranet Based

Table 4 (a). E-Resources Quality Level Checkpoints Counts for IIT Libraries Websites-Part I

IITs	Mandi			Mumbai			Patna			Roorkee			Ropar			Kanpur			Kharagpur		
Levels	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**
E-Books	Y	Y	N	Y	Y	N	Y	IB	IB	IB	IB	IB	Y	N	N	Y	Y	N	Y	Y	IB
E-Journals	Y	Y	Y	Y	Y	Y	Y	IB	IB	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	IB
E-thesis	IB	IB	IB	N	Y	IB	N	N	N	IB	IB	IB	N	N	N	IB	IB	IB	Y	Y	IB
Institutional respository	N	N	N	Y	Y	Y	N	N	N	IB	IB	IB	IB	IB	IB	IB	IB	IB	Y	N	N
Multimedia	N	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	Y	N	N	IB	N	N
Online databases	Y	Y	N	Y	Y	N	Y	N	IB	IB	IB	IB	Y	Y	N	Y	Y	Y	Y	N	IB
Total Score	**3**	**3**	**1**	**5**	**5**	**2**	**3**	**0**	**0**	**1**	**1**	**1**	**4**	**1**	**0**	**4**	**3**	**2**	**5**	**3**	**0**

IB = Intranet Based

Table 4(b). E-resources Quality Level Checkpoints Counts for IIT Library Websites –Part II

IITs	Bhubaneswar			Chennai			Delhi			Gandhinagar			Guwahati			Hyderabad			Indore			Jodhpur		
Levels	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**	**L1**	**L2**	**L3**
Document Delivery/Inter library loan	N	N	N	IB	IB	IB	Y	Y	Y	N	N	Y	IB	IB	IB	N	N	N	N	N	N	N	N	N
E-reference service/Help/Info desk	Y	Y	Y	N	Y	N	N	N	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N	Y	N	N
SDI Service (Eg. My Library)	Y	Y	Y	IB	IB	IB	Y	Y	Y	Y	Y	Y	N	IB	N	N	Y	N	N	N	Y	Y	N	N
OPAC/Web-OPAC	Y	IB	IB	Y	Y	Y	Y	Y	Y	Y	Y	Y	IB	IB	IB	N	N	N	N	N	IB	IB	IB	N
Search Facility	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N	N	Y	N	N	N
Social network	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N	N	Y	N	N	N
Total Sore	**4**	**2**	**2**	**2**	**3**	**2**	**4**	**4**	**4**	**4**	**4**	**4**	**1**	**1**	**0**	**3**	**4**	**1**	**0**	**0**	**3**	**2**	**0**	**0**

IB = Intranet Based

Table 5(a). Services Quality Level Checkpoints Counts for IIT Library Websites – Part I

5. Limitations

1. Selection of features in sub categories is representative and have been based on experience of using websites and may not be taken as standard exhaustive list.

2. Some of the links on the web pages lead to Intranet pages information for which no access could be made. In such cases for uniformity the resultant score is taken as nil ('N') and not 'Y' since actual working of respective

IITs	Mandi			Mumbai			Patna			Roorkee			Ropar			Kanpur			Kharagpur		
Levels	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Document Delivery/Inter library loan	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y
E-reference service/Help/Info desk	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y
SDI Service (Eg. My Library)	N	N	N	Y	IB	Y	N	N	N	IB	IB	IB	IB	IB	IB	IB	IB	Y	N	IB	N
OPAC/Web-OPAC	N	N	N	Y	Y	Y	N	N	N	IB	IB	IB	IB	IB	IB	Y	IB	IB	IB	IB	IB
Search Facility	N	N	N	Y	Y	Y	N	N	N	IB	IB	IB	N	N	N	IB	IB	IB	IB	IB	IB
Social network	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Total Sore	0	0	0	4	3	5	1	1	0	0	0	0	1	1	0	2	1	2	2	2	2

IB = Intranet Based

Table 5(b). Services Quality Level Checkpoints Counts for IIT Library Websites – Part II

IITs	Bhubaneswar			Chennai			Delhi			Gandhinagar			Guwahati			Hyderabad			Indore			Jodhpur		
Levels	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Aesthetic appearance	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	N
Content Presentation	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	N	Y	Y	N
Easy to use	Y	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N
Efficiency	Y	Y	N	N	N	N	Y	Y	N	Y	Y	N	N	N	N	N	N	N	Y	Y	N	N	N	N
Navigation	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	Y	Y	Y
Search Process	Y	IB	N	Y	Y	Y	Y	Y	N	Y	Y	N	IB	IB	IB	Y	Y	N	N	N	N	IB	IB	IB
Total Score	6	4	4	4	3	1	5	5	1	5	5	3	3	3	0	4	2	1	3	1	0	3	3	1

IB = Intranet Based

Table 6(a). Web-Centric Quality Level Checkpoints Counts for IIT Library Websites – Part I

linked information could not be observed.

3. The resultant score is based on presence or absence of a particular feature of the web page and is from the librarian's point of view using inspection technique and do not represent users view point.

6. Analysis

Table 7 and Figure 1 provide a consolidated figure for counts related to E-resources, Services, and Web-centric aspects of all IITs and are derived from the tabulated data above. Year of foundation of each IIT is also provided in parenthesis along with each IIT

city name. Based on the total figures, a rank is given to each IIT. It is observed that Mumbai tops the list with 1st rank (40 scores) followed by Gandhinagar (32) and Delhi (30) with 2nd and 3rd rank respectively. The trailing IITs pertain to Guwahati, Indore, and Ropar with 10th rank each. The last rank i.e. 11th is shared by Mandi and Roorkee. Interestingly, a pattern of proportionate

IITs	Mandi			Mumbai			Patna			Roorkee			Ropar			Kanpur			Kharagpur		
Levels	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Aesthetic appearance	N	N	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y
Content Presentation	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y
Easy to use	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N
Efficiency	Y	N	N	Y	Y	N	Y	Y	N	N	N	N	Y	Y	N	Y	N	N	Y	Y	N
Navigation	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y
Search Process	N	N	N	Y	Y	Y	N	N	N	N	N	N	IB	IB	IB	Y	N	Y	IB	IB	IB
Total Score	3	1	0	6	5	5	4	4	1	3	3	2	4	2	0	6	4	4	4	4	3

IB = Intranet Based

Table 6(b). Web-Centric Quality Level Checkpoints Counts for IIT Library Websites – Part II

distribution of scores is observed in all the IITs w.r.t three types of quality level criteria. If we see a consolidated score from all IITs for various categories of Information, it is observed that, Web-centric aspects (138) dominates other two i.e. E-Resources features with 99 score and E-Services features score having 81 points. This shows that though the resources are rich and web design features are well planned and established, there seems to be lack of provision of effective use of library services while accessing the desired features. An attempt is also made to correlate the year of establishment of IITs with their quality level scores. It is generally observed that old IITs with years of establishment from 1951 to 1994 have top ranks from 1 to 4, except Guwahati (1994) with 10th rank. New IITs ranging from the year of establishments 2001 to 2012 have lower ranks with more than 5th in order, with exceptions of Gandhinagar and Bhubaneswar IITs which have 2nd and 4th rank respectively. However, this trend may not be generalised in absence of other factors like resources, requisite manpower, financial aspects etc.

7. Discussion

A number of web design features checklists have been developed e.g. by Nielsen (2005), and Keeker (1997). There is also a practice of best web page awards (Farrell, 1999) yet there is no universally agreed upon specific features to be adopted and developed by the web designers. Kano's model, however, gives us freedom to continuously review the features at three quality levels dimensions which are independent of any terminological and consistency aspects since the three levels would always be present irrespective of type of website (commercial or academic), and levels of users. However there may be some variations in perceived satisfaction level of users e.g. for a new and first time visitor features under the scope of 'Normal' quality level may qualify for 'Exciting' level and for an expert website visitor, the perception of an 'Exciting' level feature may be a 'Normal' level feature. Similarly it holds good for third level of Quality i.e. 'Basic' level. On implications for research and practice, a paper by Gisela; Ping; and Ruth (1999) mentions "*This paper lays out a framework for* examining quality features of websites. The result has implications for both research in this area and practice in designing websites. An empirical study is planned to test the conceptual framework and to evaluate the quality features for different types of services provided by websites. For example, electronic-commerce websites have to meet different consumer needs *than educational websites or entertainment websites"* It seems Kano's model has not been applied to LIS sector and particularly for IITs which has far reaching implications for research and practice.

S.No.	IITs	Total Scorefrom E-resources (L1+L2+L3)	Total Scorefrom E-services (L1+L2+L3)	Total Scorefrom Web-CentricAspects (L1+L2+L3)	Rank	Grand Total score
1	Bhubaneswar (2008)	6	8	14	4(1)	28
2	Chennai(2009)	7	7	8	6	22
3	Delhi (1961)	7	12	11	3	30
4	Gandhinagar (2008)	7	12	13	2	32
5	Guwahati(1994)	5	2	6	10(1)	13
6	Hyderabad(2008)	5	8	7	7	20
7	Indore (2009)	6	3	4	10(2)	13
8	Jodhpur(2008)	9	2	7	8	18
9	Kanpur(1959)	9	5	14	4(2)	28
10	Kharagpur(1951)	8	6	11	5	25
11	Mandi (2009)	7	0	4	11(1)	11
12	Mumbai(1958)	12	12	16	1	40
13	Patna (2012)	3	2	9	9	14
14	Roorkee(2001)	3	0	8	11(2)	11
15	Ropar (2008)	5	2	6	10(3)	13
Consolidatedscore from a llIITs		**99**	**81**	**138**		

Table 7. Ranking of IIT Library Websites based on Quality Levels Scores

8. Conclusion

The findings of the present study have implications not only for designers of websites but all those stakeholders like Librarians, Users focus groups, Vendors, and Publishers etc. While designing the website features, the designers are to ensure to include all the features keeping in view the three quality dimensions and evolve an online feedback system also to review the users' suggestions from time to time. By doing so, the perceived needs of users can be fulfilled and the website would be regarded as useful and relevant in true sense. The ranking of websites based on the Kano's model may not be generalised due to many other variables and limitations. The same is to be empirically tested with wider population and including more features which are not standardised. However this gives a wakeup call for designers to improve their websites architecture. It is concluded that the standardised. However this gives a wakeup call for designers to improve their websites architecture. It is concluded that the findings of this study would be useful to the web designers and Library & Information science professionals who need to be aware about the implications of the quality features characteristics.

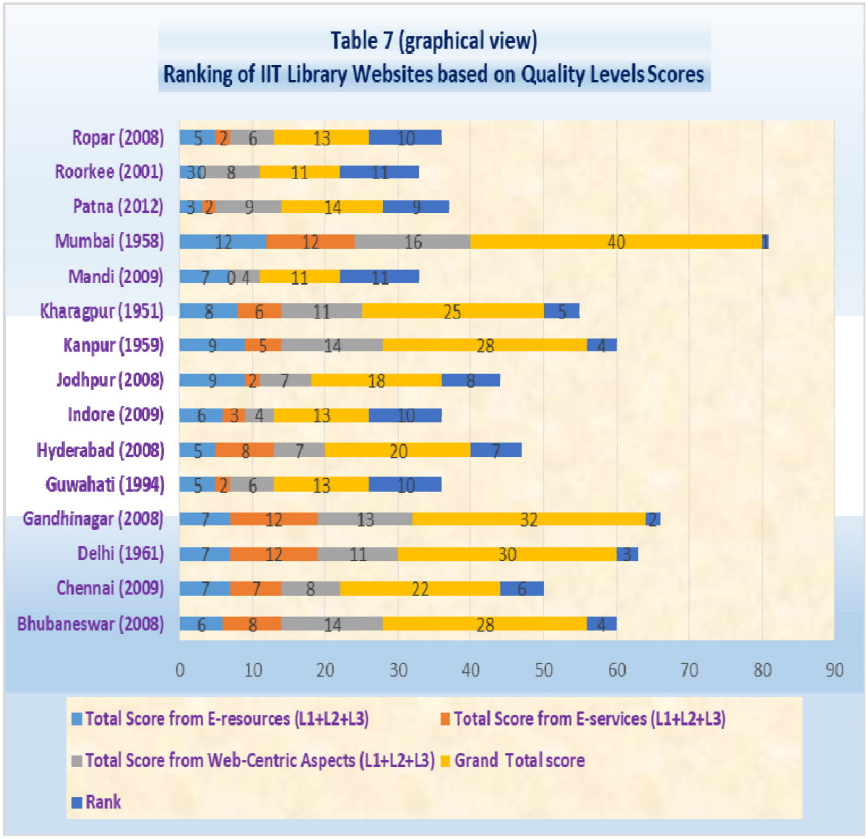

Figure 1. Ranking of IIT Library Websites based on Quality Levels Scores

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