

WEB PAGES OF ENGINEERING COLLEGE LIBRARIES IN ANDHRA PRADESH: AN ANALYSIS

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The Web Technology is evolving more rapidly than other technologies. The Internet has a huge impact on existing higher education institutions. Library websites of the institutions play an important role in the dissemination of information and resources. The careful and systematic design of any website is very important. Evaluation of websites is also important before their use. The main objective of this study is to analyze the facilities, services and other information available on the library web pages of 246 engineering colleges in Andhra Pradesh which have library links on their websites. An evaluation checklist is prepared based on previous studies. The results of this study show that most of the libraries of college websites provide information on their collection, hours, and electronic resources. But there is a lack of updated information, FAQs, web 2.0 applications, digital library and feedback facility.

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INTRODUCTION

The Web Technology is evolving more rapidly than other technologies. A website is an extension of the academic institution. This is one of the most important tools to promote the services of the institute. University and college library websites play an important role in providing users with the services they need. These sites do not allow users not only to access various library resources, but also provide them guidance for using information. Such libraries act as the reliable mirrors of the institutes. Hence, these websites should be created systematically and carefully. Further. evaluation of these websites is also important before their use. Many websites, today, are being published without verification of their accuracy and reliability. Therefore, this is the need of the hour to evaluate them at once.

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In India, technical education has seen an increase in the number of students and teachers over the past few decades. The recent growth of engineering education in India has increased, because technical educational institutions have decided to establish with private funding. The training of engineers in India began in the British era. In India, the first college of engineering was founded in Roorkee i.e. Thomson Engineering College in 1847. At first, attention was focused on civil engineering (Venkata Rao, 2013).

New Andhra Pradesh was shaped as a different State after bifurcation in 2014. As indicated by the All India Council for Technical Education (2015), there were 344 engineering institutes in Andhra Pradesh during the academic year 2014-15, among them, 10 are under Government management, 331 under private management and 3 under university management colleges.

There are two technical universities in Andhra Pradesh. They are Anantapur (JNTU-A) and Kakinada (JNTU-K). Besides these, state universities like Sri Venkateswara University, Andhra University, Yogi Vemana University, Sri Krishnadevaraya University, Acharya Nagarjuna University, Sri Padmavati Mahila Viswavidyalayam are also offering Undergraduate, Postgraduate programs and Doctoral Degrees in Engineering and related fields. Private universities, such as GITAM, KL and Vignan Universities are also offering courses in the same disciplines. Further, IIT Tirupati, National Institute of Technology, Thadapalligudem and Rajiv Gandhi University for Knowledge Technologies, Indupulapayya and Nuzvid are also offering engineering education at various levels.

REVIEW OF LITERATURE

Hirwade (2006) assesses the websites of Indian universities with exceptional reference to their library's web pages. Out of 273 colleges, 91 have included data about their libraries in their sites. Significant findings and proposals were introduced and a directory of Indian university websites was made as a result of the examination. Ramesh Babu, Narendra Kumar and Gopalakrishnan (2009) analyse the various aspects of the credibility of university websites in Tamil Nadu. The authors found that the universities have their own websites, but they lacked standard design and structure.

Kalra, Dhingra and Verma (2018) analyse the websites of 17 Private universities in Delhi NCR at macro level using a 12 checkpoint indicator. The

paper goes on to analyse the usability checkpoints, to identify the similarities, differences, and gaps in displaying various information content on the web pages. The check points wise analysis shows that most frequently sought after features viz. FAQ, Formatting, Announcements, Staff details with contact numbers, whereas updated details have almost been neglected. Only three universities have achieved average score for the presence of different checkpoints.

Assessment of the content accessible on the library sites of Indian Institute of Technologies were studied by Pathak, Pal and Rai (2008). The study shows that IITs have been recognized as one of the best institutes not only in India but also abroad with world class facilities, top infrastructure facilities and quality manpower. A study was conducted by Kumar and Bansal (2014) to evaluate library websites of new IITs. The authors demonstrates that none of the site qualifies the criteria of a quality site. If one website has one feature, it misses another one and it applies to sites of all the new IITs. As mentioned earlier, this may be attributed to the recent origin of these IITs.

Recently Sampath Kumar, Basavaraja and Shivakumara (2015) evaluated IIT library websites. They have designed a check list based on previous studies. This study was limited to analyze the content of seven IIT library Websites. The study reveals that all library websites have general information about library. Majority of the libraries provided information on all type of documents. None of the library website has provided e-mail alert, library blog, SMS alert, RSS feed service. The authors have given some guidelines to make the website more impressive and error free.

Content examination of Indian Institute of Management Library Websites is considered by Sampath Kumar et al. (2009) for better accessibility and use. Jayasundari and Jeysankar (2014) study the credibility of IIM websites as well as the web pages of the library. The study reveals that 9 IIMs have included information about their library.

Verma and Shukla (2018) evaluated the usability, efficiency, and effectiveness of Indian Institutes of Management (IIMs) libraries' websites. Online survey and observation methods were used for conducting the study. The study reveals that selected IIMs' libraries had useful websites but ignored the basic usability features and thus seem to be in primitive stage of website development. Most of the selected IIMs libraries' websites were very simple and had very basic and common usability features.

Kannappanavar and Biradar (2011) analyse many aspects of credibility of Karnataka Dental College websites. Library webpages of dental colleges in Karnataka not only serve as excellent media for publishing the library activities, programmes, resources and services but also help to bring to the notice of all the significant information. With reference to Engineering College libraries, a study conducted by Kannappanavar et al. (2014) reveal that libraries do not maintain a separate website and are limited information provided by their institute's website. Open access journals, e-books information is not available in their library website. Engineering college libraries must have a web presence and a diverse range of services. Web sites offer huge opportunities for improvement. A regular update is required.

In his study Kaushik (2015) analyses the facilities, services and other information available on the Libraries of National Institutes of Technology (NITs) websites. The study showed that NIT's library websites need to be improved. These studies help to ensure the quality and diversity of facilities of 28 NIT libraries in India. Devi and Verma's (2017) study was confined to the design and web contents of the library websites/ web page of 27 NITs. On the basis of the previous studies, 108 criteria under the 13 headings were enumerated to analyze the contents of the library websites. It is observed that 24 NITs have provided information

about the library. Web 2.0 tools are available in only 3 NIT websites.

Manjunatha (2016) in his study analyses the contents of eight special library websites located in Bengaluru, Karnataka. The author suggests some of the recommendations which are helpful to the library website creator or designer and also helpful to create more informative, interactive, and an attractive library website. It will also be useful to the users of the library website.

OBJECTIVES OF THE STUDY

The primary objectives of the study are:

- Σ To trace and classify the domain structure of engineering college websites in Andhra Pradesh;
- Σ To analyse the contents of engineering college library's web pages;
- Σ To find out the services and facilities provided by the engineering college library web pages; and
- Σ To propose measures to improve library web pages based on the findings of the study.

METHODOLOGY

There were 344 engineering colleges spread over the 13 districts of Andhra Pradesh. There were 277 college websites functioning during the study period. Among them, 246 colleges have library link which were taken for data collection. To meet the aim and objectives of the study a website evaluation checklist was prepared by referring the existing website evaluation checklists developed by Nielsen (1993), Matthews (2007), Hirwade (2006), and Shukla and Tripathi (2010). The checklist included domain structure, general information, collection, services, and application of web 2.0 and so on. All the selected library web pages were carefully analysed based on the checklist.

RESULTS AND DISCUSSIONS

Domain Structure

The domain structure of engineering college websites in Andhra Pradesh is given in Table 1.

Table 1: Domain Structure

Domain	Number	Percentage
ac.in	83	29.96
com	57	20.58
org	43	15.52
edu.in	41	14.80
in	35	12.64
co.in	9	3.25
org.in	3	1.08
edu	2	0.72
info	2	0.72
co	1	0.36
net.in	1	0.36
Total	277	100

Table 1 reveals that there are eleven types of URL extensions. Out of 277 colleges 29.96 per cent of the colleges have .ac.in as ‘URL’ extension, followed by .com (20.58 per cent), .org (15.52 per cent) and .edu.in (14.80 per cent).

Library Link in the College Website

The college websites have a separate link on library home page under which all the information about library is included is shown in Table 2.

The table 2 reveals that 67 (27.24%) libraries have separate link on the home page under which all the information about library is included. Nearly, half of the libraries provide information under ‘facilities link’, followed by 10.16% under ‘Infrastructure link’. Remaining 11.38% web sites cover the library information under the various links like academic, home, campus life, college, amenities, central facilities, departments etc.

Table 2: Analysis of Library Link on College Website

Library Link	Number	Percentage
Separate Library link on Home Page	67	27.24
Library information under Facilities link	126	51.22
Library information under Infrastructure link	25	10.16
Library information under Academic link	13	5.28
Library information under Home link	1	0.41
Library information under Campus Life link	10	4.07
Library information under College link	1	0.41
Library information under Amenities link	4	1.63
Library information under Central Facilities link	10	4.07
Library information under Departments link	1	0.41
Library information under Academic Facilities link	2	0.81
Library information under Services link	2	0.81
Library information under Students Corner link	1	0.41
Library information under Current Students link	1	0.41
Library information under Resources link	1	0.41

Contact Details on Library Web Pages

The contact details provided on the library pages were analyzed and it has been observed that some of the library pages of engineering college websites include the contact details of library staff. The observations are reported in Table 3.

Table 3: Contact Details on Library Web Pages

Contact details	Number	Percentage
Contact Person	56	22.76
Phone No.	26	10.57
E-Mail	20	8.13
Fax No.	3	1.22

It is observed from the table 3 that majority of the college library web pages do not have contact information. It reveals that 56 libraries (22.76%) out of 246 websites contain the contact person information. Telephone number is provided by 10.57% of library web pages. However, it is observed that only 8.13% of colleges provide e-mail address on their library web pages. Fax number is given by only 1.22% of libraries.

General Information of the Library Web Pages

The observations of the study pertaining to the general information of the library is reported in Table 4.

Table 4: General Information of the Library Web Pages

General Information	Number	Percentage
About	246	100
Library Photographs	186	75.61
Collection	185	75.20
Timings	110	44.72
Services	84	34.15
Automation	82	33.33
Rules	65	26.42
Staff	51	20.73
Sections	38	15.45

It is observed from the table 4 that the information about the library provided by all the websites. About 75.61% libraries include library photographs, followed by 75.20% libraries, which have given information on library collection. The information about library timings is provided by 44.72% of the websites. Library rules are informed by 26.42% of the libraries. Library services are

included by 34.15% of websites. Nearly one-third (33.33%) libraries provided information on automation in their college websites and 20.73% libraries provide information regarding library staff. A few of them (15.45%) have given information on various sections in the library.

The results of the present study confirmed the results of the study conducted by Hirwade (2006). The study reveals that 65.71% web pages include library photographs, that 48.570% of the libraries have given information on library timings 40% of the libraries have given information about library staff. Rules and regulations provided by 25.71% of libraries and 40% of libraries provided information on automation in their web pages of conventional universities. Similar results were also reported in the research work carried out by Ramesh Babu et al. (2009) supplements the results of the present study.

Appearance and Aesthetic Aspects of Library Web Pages

The overall appearance and attractiveness of the library web pages was observed during the study. The observations which are made during the study of the library web pages have been reported in Table 5.

Table 5: Appearance and Aesthetic aspects

Appearance and Aesthetic Aspects	Number	Percentage
Text Clearly legible	214	86.99
Use of graphics	178	72.36
Popup links	23	9.35
Use of Videos	8	3.25
Use of Animations	3	1.22
Scrolling text	2	0.81
Use of Sounds	2	0.81
Running Animation	-	-

The table 5 shows that the text is clearly legible in 86.99% of the library web pages. About 72.36% of the college library websites have graphics. A few of them have popup links (9.35%), videos

(3.25%) and animation (1.22%). Only 0.81% library web pages used scrolling text and sounds. The percentage of other appearance and aesthetic aspects is relatively less in majority of the library web pages. While percentage being relatively high in the study done by Hirwade (2006) revealed that almost all the universities having library web pages have used images. Use of animations is observed nearly by half of the university library web pages.

Details of Library Staff

The information regarding library staff included in library pages of engineering college websites is shown in Table 6.

Table 6: Library Staff Details

Library Staff details	Number	Percentage
Designation and number of posts	39	15.85
Name of the Person & Designation	36	14.63
Postal Address	6	2.44
Cell Number	6	2.44
E-Mail	6	2.44
Bio data of top authorities	4	1.63

The table 6 shows that 15.85% websites provided information about the designation of library staff and number of posts only. Name of the employee along with designation is provided by 14.63% websites. Postal address, cell number and e-mail are provided by 2.44% of libraries. It is observed that the bio-data of top library authorities is provided by only 1.63% of websites.

Details of Library Collection

Library collection related information among the library web pages have been provided in the Table 7.

It is observed from the table 7 that 183 libraries covered the information about the collection of the library. However, the extent of information covered varies. In the websites which have separate library home page, 74.39% provided information

about collection, 63.41% have provided only list of various kinds of documents and 58.94% of them have provided information about the kind of documents and number of documents. Only 18.70% libraries provided detailed information about collection. 63.82% of the library web pages provided information about access to some of the documents like e-journals, etc. The results of the present study confirmed the results of the study conducted by Hirwade (2006) which revealed that 80% web pages include library collections on their web pages of Conventional Universities.

Table 7: Details of Library Collection

Library Collection	Number	Percentage
Total Collection number	183	74.39
Access to some of the documents like e-journals, etc.	157	63.82
Only list of various kinds of documents	156	63.41
Kind of documents & number	145	58.94
Detailed information of the Collection	46	18.70

Details of Library Services

The information regarding library services covered in the library pages of engineering college websites was analyzed in the present study. The observations are shown in Table 8.

Table 8: Library Services

Library Services	Number	Percentage
List of library services only	70	28.46
Each service is explained briefly	50	20.33
Each service is explained in details with additional Hyperlink	3	1.21

It is observed from the table 8 that only 28.46% library web pages provided information about the list of library services. Each library service is

explained briefly in 20.33% web pages. Only in 3 (1.21%) cases, each service is described in detail with additional hyperlinks.

E-Resources and other Services

The details of e-resources and other services provided on the library pages were analysed. The observations are reported in Table 9.

Table 9: E-Resources and Other Services

E-resources and Other Services	Number	Percentage
Access to e-journals, etc.	157	62.82
Links to Other Websites & databases	22	8.94
Open Access Journals/ databases etc.	12	4.88
OPAC Search	6	2.43
Digital Library	4	1.62
Web 2.0 Technology	1	0.41

The table 9 reveals that majority of the libraries (62.82%) provided information on e-journals that can be accessed online in their web pages. Only a few libraries (8.94%) provided link to other websites and databases on their websites. A few of them (4.88%) have provided information on open access journals, databases etc. Only 2.43 per cent libraries have links to their Online Public Access Catalogues on college websites. Digital library information is provided by 1.62 per cent of the libraries. Only one library used web 2.0 technologies on the web pages.

Search, Feedback and Retrieval Interface

The details of search, feedback and retrieval interface provided on the library pages are analyzed. The observations are reported in Table 10.

The table 10 clearly indicates that the search, feedback and retrieval interface available on web pages of the library. It is revealed that majority of the libraries (86.96 per cent) have links to home page. The search facility was provided by only 15.01 per cent of college library web pages and 14.23 per cent libraries provided the site map, and

very few library web pages (1.98 per cent) provided feedback facility. Only one library provided FAQs. Similar study done by Madhusudhan and Ahmed (2014). It reveals that only one library that provided FAQs. A similar study conducted by Haneefa and Venugopal (2010) which reveals that a good number of the libraries provide a site map and search facility on their websites.

Table 10: Search, Feedback and Retrieval Interface

Criteria	Number	Percentage
Home link	220	86.96
Search	38	15.01
Site map	36	14.23
Feedback	5	1.98
FAQs	1	0.40

CONCLUSION

The present study provides an insight about the information, services, web resources and facilities available in majority of the libraries of engineering college websites in Andhra Pradesh. It is found that the contents and information varied in the library websites. None of the college has separate library home page. Hence, the colleges should include a separate library home page. Only 246 colleges have library link out of 277 college websites. College website should include a separate 'library' link. This study also reveals that majority of library websites provide information with regard to their collection, photograph, hours and electronic resources. They lack of updated information, FAQs, Web 2.0 applications, digital library and feedback facility. To keep the websites up-to-date and FAQ, sitemap and search facility should be added to the website, which will increase its accessibility. Links to their Online Public Access Catalogues in their library web pages is a neglected factor in most of the websites. Hence, OPAC should be searchable.

Therefore, there is a need for improvement and development of contents of the library websites, especially with regard to the library websites which

do not have essential criteria on their respective library websites. Some standards for designing of engineering college websites and their library webpages should be evolved. The study would be helpful for librarians and webmasters to improve the content, awareness and status of their library websites.

REFERENCES

- [1] AICTE. (2015, September 22). Retrieved from <http://www.aicete-india.org>Devi, K.K.,
- [2] Haneefa, K.M. & Venugopal, M.K.A. (2010). Contents of National Library Websites in Asia: An analysis. *Annals of Library and Information Studies*, 57 (3), 98-108.
- [3] Hirwade, M. A. (2006). *Websites of Indian universities: An evaluation*. Bombay: Himalaya Publishing House.
- [4] Jayasundari, A., & Jeyshankar, R. (2014). Web Credibility of Indian Institute of Management (IIMs) Web Sites: A Study. *Journal of Advances in Library and Information Science*, 3 (3), 222-232.
- [5] Kalra, J, Dhingra, S. & Verma, R. K. (2018). Evaluation of Library Websites of Private Universities in Delhi NCR – A Preliminary Study. *Library Herald*, 56 (3). 355-367.
- [6] Kannappanavar, B. U., Jayaprakash, M., & Bachalapur, M. M. (2011).Content Analysis of Engineering College Library Websites. Library Philosophy and Practice, Paper 673. Retrieved from <http://digitalcommons.unl.edu/libphilprac/673>
- [7] Kannappanavar, B. U., & Biradar, B. S. (2011). Credibility off Dental College Websites in Karnataka. *International Journal of Digital Services*, 1(1): 62-70.
- [8] Kaushik, A. (2015). An Evaluation of National Institutes of Technology (NITs) Library Websites. *DESIDOC Journal of Library & Information Technology*, 35 (3), 223-234.
- [9] Kumar, V., & Bansal, J. (2014). Qualities of a library website: Evaluating library websites of new IITs. *International Journal of Information Dissemination and Technology*, 4(4), 283-288.
- [10] Madhusudhan, M. & Ahmed, N. (2014). Evaluation of Indian Institute of Management Library Websites in India. *World Digital Libraries*, 6(1), 49-72.
- [11] Manjunatha, K. S. (2016). Content Analysis of Special Library Websites: An Analytical Study. *International Journal of Next Generation Library and Technologies*, 2 (2), 1-9.
- [12] Matthews, J.R. (2007). *The Evaluation and Measurement of Library Services*. London: Libraries unlimited.
- [13] Nielsen, J. (1993). *Usability Engineering*. Boston: Academic Press.
- [14] Pathak, M. P., & Vijay Rai (2008). Proper Content Management to the Library Web Site: Evaluation of all IIT's Library Websites. CALIBER 2008. Proceedings of Six International Convention for Automation of Libraries in Education and Research, Allahabad, India, 28-29 February – March 1 2008, Information and Library Network Centre (INFLIBNET),353-359.
- [15] Ramesh Babu, B., Narendra Kumar, A. M., & Gopalakrishnan, S. (2009).Credibility of

- University Websites in Tamil Nadu. *DESIDOC Journal of Library & Information Technology*, 29(3), 16-28.
- [16] Sampath Kumar, B. T, Basavaraja, M. T., & Shivakumara, S. U. (2015). Web Content Analysis: Comparing the Indian Institute of Technologies Library Websites. In. Proceeding of International Conference on Innovation Driven Librarianship: Creating Future Landscape for the New Generation Libraries, Kattankulathur, 11-13 June 2015. Edited by Dong Geun Oh et al., SRM University, 987-993.
- [17] Sampath Kumar, B. T. et al. (2009). Content Analysis of Indian Institute of Management Library Websites: An Analytical Study. CALIBER 2009. E-Content Management: Changes and Strategies. Proceedings of Seventh International Convention for Automation of Libraries in Education and Research, Pondicherry, India, 25-27 February 2009. Edited by Jagdish Arora et al., Information and Library Network Centre (INFLIBNET), 194-201.
- [18] Shukla, A., & Tripathi, A. (2010). Establishing content awareness evaluation criteria for library websites: A case study of Indian academic library websites. *Annals of Library and Information Studies*, 57(4), 403-416.
- [19] Venkata Rao, N. (2013). Management of Electronic Resources in NBA Accredited Engineering College Libraries in Andhra Pradesh (India): A Survey. Unpublished Ph.D. thesis, Andhra University, Visakhapatnam. Retrieved from Shodh Ganga.
- [20] Verma, M. K. (2017). Content Evaluation and the Design Trends of National Institutes of Technology (NITs) Library Websites of India: An Evaluative Study. *Journal of Indian Library Association*, 53(2&3). 135-147.
- [21] Verma, N.K., & Shukla, A. (2018). Usability Analysis of Indian Institutes of Management Libraries Websites: An Evaluative Study. *Journal of Advancements in Library Sciences*, 5 (1). 23-32.