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Users' perception of Information Sources and Services at Vardhaman College of Engineering (Autonomous) Library, Hyderabad: A Case Study

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Abstract

Currently, Engineering College Libraries in South India is in various stages of advancement with regard to sources, services and facilities. The VCE Central Library subscribes to a number of print periodicals (national & international), electronic resources (e-journals and e-books) and multiple volumes of books to satisfy the information needs of its users. VCE is renowned and as well as one of the leading institutions of Engineering Education in Telangana State. This paper describes the offering of the Information Sources and Services to the faculty members of Central Library, Vardhaman College of Engineering (Autonomous), Hyderabad and the purpose of this study is to understand how faculty members access different types of information sources, services and facilities and their purposes.

Keywords

Vardhaman College of Engineering, Information Sources and Services, Faculty Members, e-Resources, Print Resources and Hyderabad.

Introduction

Academic library is the heart of an academic institution and it holds a very significant position in the educational organization. Being an essential part of the system, library is dedicated to provide excellent information sources and services to the user's community. The main objective of an academic library system is to make required information available and accessible to the users at the right time.

Engineering colleges are prominent information centers and play a crucial role in fulfilling the information needs of users of specialized disciplines of each academic institution, which are not only to provide academic and research knowledge for user community but also to capture, organize and disseminate information sources and services to them and play significant role in the survival and growth of each academic institution. The user community is the most important

element of a library. The main objective of information sources and services is to satisfy its users.

Engineering education is a skilful, artful and constructive education. Technical education plays a vital role in the social and economic development of our nation. Engineers need latest information in their subjects to support their learning, teaching, and other research requirements. The library professionals working in these institutions should give importance to acquire appropriate and need based literature in those subjects to meet the information needs of their users. Identifying information needs and usage pattern of information resources, facilities and services of the users of engineering institutions is important for the development of the library and information system¹.

Engineering college libraries like any other college libraries are affiliated to the institutions, that contribute primarily to the teaching and learning process by providing various information and learning resources to the clientele for their successful persuasion of the course programs offered by the institution. AICTE, the regulatory body for technical education in India, has framed elaborate norms for libraries of the engineering colleges offering different technical courses².

According to D.J.Foskett, it is mainly in scientific and industrial research that the information service or information library has developed most strikingly into its present characteristic form. While the major features of information services were developed by the mid-20th century, their particular concerns and activities are continually changing as user needs and information resources change. (World Enc., 1980)³.

Information is processed data. An information source is where you get your information from; this can be a book or a website. Information sources are the various means by which information is recorded for use by an individual or an organization. They are the means by which a person is informed about something or knowledge is availed to someone, a group of people or an organization. Information sources can be observations, people, speeches, documents, pictures, organizations. They can be in print, non-print and electronic media or format⁴.

About Vardhaman College of Engineering (Autonomous)

Vardhaman College of Engineering was established in 1999 by Vardhaman Educational Society and obtained autonomous status in 2014. With sustained and dedicated efforts. Vardhaman is one of the leading hubs of education, offering, graduate, postgraduate engineering programmes and post graduate management programmes.

The college is approved by AICTE and has permanent affiliation with Jawaharlal Nehru Technological University Hyderabad. It has also been recognized by the UGC. Accredited by NAAC with CGPA 3.24 on a four point scale, five of its UG programmes are accredited by NBA. National Institute Ranking Framework (NIRF) ranked VCE in top 150 to 200 Engineering Colleges in India. VCE is accomplished to have recognition by the UGC in accordance of Colleges with Potential for Excellence (CPE). The Department of Science and Technology (DST) recognized it under its aegis of Scientific Industrial Research Organization (SIRO). The college is participating every year in CII survey prompted by AICTE. It has ISO 9001:2008 certified institution. The college is graded AAA+ by a leading magazines successfully during the past three years.

Vardhaman is a place where students are challenged and motivated to change their perspectives. The institute aims to emphasize on Outcome Based Education (OBE), Experimental Education (through Project Based Learning), research in thrust areas translational impact, and the creation of engineers as leaders in society. Their faculties constantly change their pedagogies and instrumental approaches to match industry requirement and student needs. Students go on to change the society with the knowledge they have acquired at Vardhaman. With focus on industry centric quality education, Vardhaman has entered into a large number of Memorandums of Understanding (MoU) with premier industries.

Vardhaman offers dynamic curriculum, consists of robust and talented pool of faculty members, and state of the art infrastructure in all the departments. It is well known for imparting quality education, active research and also in nurturing students for holistic development – achieved through students' engagement tools like continuous evaluation, blended learning, active use of MOOCs, credit-based systems, departmental electives, institute electives, industrial visits, industrial projects, expert lectures, soft skills development and many more.

About the VCE Central Library

'Library and Information Centre', is one of the best engineering college libraries in the state. The institute has a spacious Central Library in an independent building with a large collection of textbooks, reference books, technical journals & magazines, CDs/DVDs.

It has a collection of 62,771 volumes of books as on 20th February, 2018. It has subscribed to more than 5020 Online Journals of IEEE ASPP+POP, ASME, ASCE, ELSEVIER (ScienceDirect), Scopus (Elsevier's abstract and citation database), ASTM Digital Library, J-Gate - Engineering & Technology, J-Gate - Social and Management Science and 41 Lac e-books of World eBook Library, which can be accessed within the campus. In addition to e-Journals of relevant online databases, the library has also subscribed more than 167 Indian and International Technical Journals & Magazines in Print.

NPTEL video Lectures delivered by India's best teachers from IITs and IISc are also available in Library. Library has taken renowned outside Library memberships like DELNET (Inter- library loan) and British Council Library, Hyderabad for resource sharing. It also provides National Digital Library (NDL) facility for huge collection of e-Learning resources with a single window search facility which is being developed at IIT Kharagpur.

The Central Library has a DTH antenna to receive the SWAYAM PRABHA group of 32 channels devoted to telecasting of high-quality educational programmes on 24X7 basis practicing the GSAT-15 satellite. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal. Students and staff members can watch the offering MOOCs courses through SWAYAM.

The Center Library is equipped with NewGenLib Software Package which is an Integrated Library Management System (ILMS) with Barcode Scanner that supports all in-house operations of the library. The Central Library can be accessed through the On-line Public Access Catalogue (OPAC) within the campus premises.

Library and Information Centre provides uncompromising information and caters to the intellectual requirements of its students and faculty members with user-friendly approach. It

offers a fully integrated and dynamic environment for conducting academic and research activities. Central Library is Wi-Fi enabled and under CCTV surveillance. For circulation of library books 'Automated Self Service Kiosk' is installed in the Central Library which enables users to issue (check-out), return (check-in) and renew books on their own. For each transaction, Kiosk generates a receipt with details of library documents transacted and due dates.

The Library has reading area, reference section, digital library, audio visual room, discussion rooms, and periodicals section etc to facilitate maximum utilization of the available information sources and services by the students and staff. Library services and facilities are state-of-the art following the open access system has been provided to all users, the reading materials have been classified based on Dewey Decimal Classification, the subscription of e-resources, print periodicals, the best collection of books and one of the beautiful and functional library building architecture is the first private sector engineering colleges in Telangana and Andhra Pradesh. The Information Sources and Services are constantly updated and the facilities are added periodically to keep pace with the recent developments in the various areas of knowledge and consist of passionate professionals and semi professionals and compassionate staff members.

Review of Literature

Survey of 101(84.16%) students belonging to Agriculture Science College, Shimoga to study the frequency , purpose of visit to the library and the usefulness of agriculture science periodicals reveals that 77.22% of respondents visit library every day. About eighty eight percent students visit library to read journals and magazines followed by visits to borrow books (87.12%). It was found that a large number of users use books followed by periodicals. As far as usefulness of periodicals is concerned users opined that The Indian Journal of Agriculture Science (62.92%) and Karnataka Journal of Agriculture Science (60.67%) are the most useful journals and it needs to be given for subscribing online periodicals through e-consortia⁵.

Using the case study method, the author investigated the availability and accessibility of information sources and the use of library services in the university library, Michael University of Agriculture, Umudike, Abia State, Nigeria. The population was made up of 1,000 registered library users, with a random sample of 200. A response rate of 168 was recorded. The study revealed that information sources in the library are not readily available nor easily accessible and concludes that the independent variables of availability and accessibility have influence on, and a significant relationship with, the use of library services⁶.

This study investigates the information needs and information seeking behaviour of computer engineering undergraduate students at Nanyang Technological University (NTU), Singapore. The purpose was to investigate the types of information sources used by the students, their preferred information formats, the importance of and reasons for using certain information sources and the use of various electronic information sources. A questionnaire was distributed to 200 randomly selected students and 102 completed questionnaires were returned. The study found that printed materials were the most preferred information format among the students. The top five most preferred information sources, in the order of importance, were books, lecturers, the Internet, friends and manuals. Unexpectedly, the use of databases and electronic journals was quite low among the computer engineering students. The study recommends a promotional campaign for introducing electronic information sources to the library users⁷.

This paper discusses faculty awareness and use of library information products and services in South-West Nigeria universities. Systematic random sampling method was used to select 446 faculty members from a population of 4,459 in the universities. A questionnaire formed the major instrument for data gathering. The response rate achieved was 89.7 percent and the reliability coefficient of the questionnaire used was 0.72. The study found that there was a significant difference in faculty awareness of available library information products and services. In addition, they did not have sufficient knowledge of those library products and services pertinent to their teaching and research activities. The survey also revealed that the level of knowledge of faculty staff had positive relationship with the frequency of use, consultation with the librarians, faculty status and membership of library related committees. User education programmes coupled with planned public relations were recommended to improve faculty awareness of library information products and services⁸.

This study investigated undergraduates' source selection behaviour: what sources they use frequently, what criteria they consider important for source selection, how they perceive different sources, and whether their source selection behavior is related to what they know about selection criteria. Semantic differential rating scales and correspondence analyses were used to capture the participants' perception of source characteristics. Five hundred and seventy-six undergraduate students from a public university participated in the study. The study found discrepancies between what students know and what they do regarding source selection. Spearman's rank correlation results imply that participants did not apply the criteria they considered important (e.g., accuracy, currency) frequently when selecting sources. Sources

perceived to be “accessible” in economical, physical, and psychological senses tended to be used often. Suggestions were made to refine information literacy programs to support the selection of quality sources⁹.

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Scope of the study

The present study is restricted to the faculty members of Vardhaman College of Engineering (Autonomous) Library, Hyderabad.

Objectives

The specific objectives of the study are:

- To ascertain the accessibility of different types of information sources and services in this study.
- To determine the information sources and services used by the faculty members.
- To find out the availability of information sources and services.
- To identify the different types of information sources and services available in the library.
- To know the satisfaction level of the faculty members towards information sources and services in this study.
- To find out purpose of using the information sources and services by faculty members.

Methodology

The questionnaire based survey method was used for the collection of data in the present study. A well-structured questionnaire was designed and distributed personally among the faculty members in different departments of Vardhaman College of Engineering (Autonomous), Hyderabad. Total 120 faculty members were selected and their response was obtained with the help of questionnaire.

Data analysis and Interpretation

Total 120 questionnaires were randomly distributed among the different designations of faculty members namely Professors 26 (21.66%), Associate Professors 41 (34.17%), and Assistant Professors 53 (44.17%) respectively.

Distribution of respondents by faculty designation

Table 1 Designation-wise distribution of respondents

Faculty designation	No. of respondents	Percentage (%)
Professor	26	21.66
Associate Professor	41	34.17
Assistant Professor	53	44.17
Total	120	100

Table 1 indicates the designation-wise distribution of respondents. It could be noted that out of the total 120 respondents, 21.66% are Professors, 34.17% are Associate Professors and the remaining 44.17% respondents are Assistant Professors. It is concluded that Assistant Professor followed by Associate Professors are the respondents in the study.

Distribution of respondents by gender

Table 2 Gender-wise distribution of respondents

Gender	No. of respondents	Percentage (%)
Male	76	63.33
Female	44	36.67
Total	120	100

Table 2 reveals the data taken from male and female of faculty members in Vardhaman College of Engineering (Autonomous), Hyderabad. Out of the total 120 respondents, majority of the respondents (63.33%) belong to the male faculty members while the remaining 36.67% are female faculty members. It is concluded that male respondents constitute more in number than female respondents.

Accessibility of different types of information sources in the library

Table 3 Accessing different types of information sources

Types of Information Sources	No. of respondents	Percentage (%)
Text Books	109	90.83
Reference Books	71	59.16
Print Periodicals	45	37.50
Project Reports	30	25.00
e-Journals	94	78.33
e-Books	67	55.83
CDs/DVDs	29	24.16

SWAYAM Prabha	25	20.83
NPTEL-SWAYAM Content	33	27.50
National Digital Library of India (NDL)	21	17.50
Open Access Resources	46	38.33

Note: Respondents were permitted multiple answers.

Table 3 reveals the accessibility of different types of information sources among the faculty members. The analysis shows that (90.83%) of the respondents were accessing Text Books, while 78.33% of the faculty members are used e-Journals, followed by 59.16% of them were found that they were used Reference Books for their respective information. Further, the remaining 55.83% faculty members are accessed e-Books, 38.33% of them are searching Open Access Resources, followed by 37.50% faculty members used for Print Periodicals. Whereas 27.50% of the faculty members used NPTEL-SWAYAM content, 25% of them have referred Project Reports, 24.16% of them searched for CDs/DVDs. 20.83% of the faculty members were using the SWAYAM Prabha Channels, and 17.50% of the respondents were accessing National Digital Library of India (NDL) portal.

Availability of Information services and facilities in the Library

Table 4 Information services and facilities

Types of Information Sources	No. of respondents	Percentage (%)
Circulation/Book Lending	112	93.33
Reference Service	63	52.50
Inter-library Loan	32	26.66
Literature Search Service	75	62.50
Selective Dissemination of Information (SDI)	47	39.16
Internet	92	76.66
Digital Library	84	70.00
Abstracting and Indexing Service	40	33.33
Newspaper Clipping Service	28	23.33
Reprographic Service	62	51.66
Printing Service	39	32.50
On-line Public Access Catalogue (OPAC)	77	64.16
User Awareness Programme	55	45.83
Discussion Rooms and Reading Area	48	40.00

Note: Respondents were permitted multiple answers.

Table 4 reveals that the availability of information services and facilities among the faculty members. The analysis shows that (93.33%) of the respondents were availing Circulation/Book Lending service, while 76.66% of the faculty members are used Internet , followed by 70% of

them were found that they were availing Digital Library facility for their required electronic information resources. Further, the remaining 64.16% faculty members are accessed On-line Public Access Catalogue (OPAC), 62.50% of them are Literature Search Service, and followed by 52.50% faculty members used Reference Service. Whereas 51.66% of the faculty members used Reprographic Service, 45.83% of them are educated through user awareness programme, 40% of them were utilized the discussion rooms and reading area, 39.16% of the faculty members were using Selective Dissemination of Information (SDI) service, 33.33% of the respondents were accessing Abstracting and Indexing Service, 32.50% of the faculty members are getting printing, 26.66% of them are availing Inter-library Loan facility and 23.33% of them are using Newspaper Clipping Service from the Library.

Purpose of using the information sources and services

Table 5 Purpose of using the information sources and services in the library

Purpose	No. of respondents	Percentage (%)
Academic/Teaching	78	65.00
Research (Thesis/Dissertation/Projects)	90	75.00
Writing Research Articles/Chapters for Books	44	36.66
Publishing Articles/Books	82	68.33
Academic/Teaching	56	46.66
Access professional Societies and Organizations	49	40.83
Current Awareness/Update Knowledge	65	54.16
For getting significant information in the area of specialization	37	30.83
Career information	72	60.00
General Knowledge	41	34.16

Note: Respondents were permitted multiple answers.

Table 5 reveals that the various purposes for which the faculty members used the information sources and services. Majority of the respondents (75%) used the information sources and services for research (Thesis/Dissertation/Projects). About 68.33% of the respondents using the information sources and services for publishing articles/books, 65% respondents used it academic/teaching, 60% used it to career information, while 54.16% used it as current awareness/update knowledge, 46.66% using to academic/teaching, 40.83% using to Access professional societies and organizations, 36.66% using to writing research articles/chapters for books, 34.16% using to general knowledge, 30.83% of the respondents used the information sources and services for getting significant information in the area of specialization.

Satisfaction level of Information Sources and Services

Table 6 Satisfaction level of Information Sources and Services

Satisfaction level	No. of respondents	Percentage (%)
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Fully satisfied	88	73.33
Satisfied	24	20.00
Partial satisfied	6	5.00
Dissatisfied	2	1.67
Total	120	100

Data presented in Table 6 indicates that most of the respondents (73.33%) are fully satisfied with Information Sources and Services and 20% of them are satisfied with Information Sources and Services available in their library. It is also evident from the table that 5% Information Sources and Services of them are partial satisfied and 1.67% of the respondents are dissatisfied with Information Sources and Services.

Findings

Based on the analysis of the present study the following findings are made to improve the use of information sources and services in VCE Library.

- This study positively resolves make simple in building information sources and services to satisfy the faculty members of Vardhaman College of Engineering (Autonomous), Hyderabad.
- (44%) of the faculty members are assistant professor and (34.17%) of the faculty members are associate professors are the respondents in this study.
- Most of the respondents (93.83%) were availing circulation/book lending service and (76.66%) of respondents are used Internet.
- A large number of faculty members (90.83%) were accessing text books and (78.33%) of the respondents are used e-Journals.
- Most of the respondents (75%) used the information sources and services for research and (68.33%) of the faculty members are using the information sources and services for publishing articles and books.
- The majority of the respondents (73.35%) are fully satisfied with available information sources and services.

Recommendations

Based on the analysis of the present study the following are made to improve the use of information sources and services in VCE Library.

- The result of the present study identified, really information sources and services are extremely potential for library users particularly faculty members in their part of innovative teaching - learning and research activities.

- Faculty members are supposed to obtain the lead initiate for using information sources and services to their professional requirements.
- Engineering College Libraries should provide information sources and services to the pedagogical needs of the faculty members.
- Librarians should give proper training and instruct their users for using the print and electronic resources and support them for utmost exploitation of the availability resources.
- Library personnel have to be aware of how to inspire and train to use of information sources and services for their research and academic practices and suggested that training, orientation and awareness (information literacy) programs should be made available in their libraries for optimum utilization of accessible information sources and services.

Conclusion

Usually, engineering college libraries has played a fundamental responsibility in the growth and development of technical education and knowledge output of the institution. Consequently, the libraries are wanted to provide needed information sources and services when they essential to the students and faculty members and face a challenge to promote the use of available their information sources and services to maximize utilization and are the significant information sources and services of libraries are considered and which are meet professional needs of user community.

References

1. Lewis, Felcy, and T. Y. Mallaiah. "Use of information resources in engineering college libraries of Dakshina Kannada and Udupi Districts: A comparative study." (2014). (<http://nopr.niscair.res.in/bitstream/123456789/29035/1/ALIS%2061%282%29%20142-152.pdf>).
2. Shrivastava, Deepak Kumar. "Evaluation of library services of engineering colleges in Kota region." (2012).

(http://shodh.inflibnet.ac.in:8080/jspui/bitstream/123456789/86/3/03_chapters.pdf).

3. Arora, Mrs Renu, and Shalini Lihitkar Waghmare. "Development Team." (http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000021LI/P000099/M001940/ET/1483075936P04_M-25.pdf).
4. Gudi, S. P., et al. "Use of Information Sources and Services by PG Engineering Students in Jayawant Library of Rajarshi Shahu College of Engineering, Pune (India): A Case Study."
5. Biradar, B. S., P. Dharani Kumar, and Y. Mahesh. "Use of information sources and services in library of Agriculture Science College, Shimoga: a case study." (2009).
6. Ugah, Akobundu Dike. "Availability and accessibility of information sources and the use of library services at Michael Okpara University of Agriculture." (2008).
7. Majid, Shaheen, and Ai Tee Tan. "Usage of information resources by computer engineering students: a case study of Nanyang Technological University, Singapore." *Online Information Review* 26.5 (2002): 318-325.
8. Popoola, S. O. "Faculty awareness and use of library information products and services in Nigerian Universities." *Malaysian Journal of Library & Information Science* 13.1 (2017): 91-102.
9. Kim, Kyung-Sun, and Sei-Ching Joanna Sin. "Selecting quality sources: Bridging the gap between the perception and use of information sources." *Journal of Information Science* 37.2 (2011): 178-188.
10. Biradar, B. S., P. Dharani Kumar, and Y. Mahesh. "Use of information sources and services in library of Agriculture Science College, Shimoga: a case study." (2009).
11. Tallolli, Somaraya B., and K. R. Mulla. "Information Resource and library Services Literacy through website in Engineering College Libraries: A case study."
12. George, Carole A., Alice Bright, Terry Hurlbert, Erika C. Linke, Gloriana St Clair, and Joan Stein. "Scholarly use of information: graduate students' information seeking behaviour." *Information research* (2006).
13. Brown, Cecelia M. "Information literacy of physical science graduate students in the information age." *College & Research Libraries* 60, no. 5 (1999): 426-438.
14. Maughan, Patricia Davitt. "Library resources and services: a cross-disciplinary survey of faculty and graduate student use and satisfaction." *The Journal of Academic Librarianship* 25, no. 5 (1999): 354-366.

15. Niu, Xi, Bradley M. Hemminger, Cory Lown, Stephanie Adams, Cecelia Brown, Allison Level, Merinda McLure, Audrey Powers, Michele R. Tennant, and Tara Cataldo. "National study of information seeking behavior of academic researchers in the United States." *Journal of the American Society for Information Science and Technology* 61, no. 5 (2010): 869-890.
 16. Saunders, Laura. "Faculty perspectives on information literacy as a student learning outcome." *The Journal of Academic Librarianship* 38, no. 4 (2012): 226-236.
 17. DeHaan, Robert L. "The impending revolution in undergraduate science education." *Journal of Science Education and Technology* 14, no. 2 (2005): 253-269.
 18. Hurd, Julie M., Deborah D. Blecic, and Rama Vishwanatham. "Information use by molecular biologists: Implications for library collections and services." *College & research libraries* 60, no. 1 (1999): 31-43.
 19. Astin, Alexander W., Lori J. Vogelgesang, Kimberly Misa, Jodi Anderson, Nita Denson, Uma Jayakumar, Victor Saenz, and Erica Yamamura. "Understanding the effects of service-learning: A study of students and faculty." *Report to the Atlantic Philanthropies* (2006): 1-155.
 20. Kumar, Devendra, Akhtar Hussain, M. M. A. Ansari, and Nishat Fatima. "Expectations of Faculty Members and Research Scholars on Library Resources and Services: A case Study of Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, Uttar Pradesh, India." *Chinese Librarianship: an International Electronic Journal* 30 (2010).
 21. Whitlatch, Jo Bell. "Library use patterns among full-and part-time faculty and students." *College & Research Libraries* 44, no. 2 (1983): 141-152.
- Rugarcia, Armando, Richard M. Felder, Donald R. Woods, and James E. Stice. "The future of engineering education I. A vision for a new century." *Chemical Engineering Education* 34, no. 1 (2000): 16-25.