

INFORMATION BEHAVIOUR OF ENGINEERING COLLEGE STUDENTS IN TRIVANDRUM CITY

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Abstract: The present study is aimed to examine information seeking behaviour of engineering college students in Trivandrum city. It encompasses two Government, two private and two aided engineering colleges. The population consists of final year B. Tech students. A sample of 300 students was selected to conduct the study. Data is collected using a structured questionnaire. The questionnaire is distributed among 300 students and 249 were returned. The analysis was conducted using SPSS Version 20. The results revealed that, majority of students are using internet and e-resources to access information. They visit library to prepare seminar/research work, to borrow books, to read text books and to refer question paper. Malaya Manorama is the most preferred newspaper. The respondents depend more on librarians or library to seek required information.

Keywords: Information seeking behaviour, engineering students, Trivandrum, Information needs

1.0 Introduction

Now we live in the age of knowledge and information explosion. The explosion took place in two ways, in number of resources and formats. It is difficult to find out the desired information from the abundance of information. The information seeking behavior is mainly concerned with who needs what kind of information and for what reasons, how information is found, evaluated and how these can be identified and satisfied. Wilson (2000) defines the term information seeking behaviour as 'the totality of human behaviour in relation to sources and channels of information, including both active and passive information seeking and information use. Information seeking behavior is a broad term, which involves a set of actions that an individual takes to express information needs, seeking information, evaluate and select information and finally uses this information to satisfy his/her information needs. The way of information gathering may vary from person to person. The variation may depend on one's educational qualification, age, gender, need, availability of information, preference among different formats and so on. The present study is intended to explore information seeking behavior of Engineering students.

2.0 Objectives of the Study

The major objectives of the study are,

1. To identify the information needs of engineering students
2. To examine the users approach towards information
3. To identify the different types of information sources preferred by engineering students
4. To identify the adequacy of existing library collection and services provided by the library.
5. To examine the awareness about online information sources
6. To identify the most preferred e-resources by engineering students
7. To find out the barriers occurred during information seeking

3.0 Hypotheses

The study proceeds with the following hypothesis:

H1: There is no significant association between gender and online search.

H2: There is significant association between form of information resource and gender.

4.0 Review of Literature

The use of health resources by nursing students was examined by Dee & Stanley in 2005. Questionnaires, interviews, and observations were used to collect data from twenty-five nursing students and twenty-five clinical nurses. Results showed that, Nursing students and clinical nurses were most likely to rely on associates and books for medical information, while other resources they frequently cited included personal digital assistants, electronic journals and books, and drug representatives. Significantly more nursing students used online databases, including CINAHL and PubMed, to locate health information, and nursing students were more likely than clinical nurses to report performing a database search at least one to five times a week.

In 2004 Kakai investigated the information needs and seeking behavior of undergraduate students of Makerere University. A cross sectional survey was carried out on 104 undergraduate students from the Department of Biochemistry in the Faculty of Science and the Department of History in the Faculty of Arts. Ellis six generic information seeking activities were tested to establish how undergraduate students seek information.

- a) Information Seeking Behavior (ISB) of students from different disciplines of five engineering colleges in Tirunelveli District was carried out by Basha, Rani and Chinnasamy. A well-structured questionnaire was circulated to collect necessary data. The study reveals that the primary purpose on seeking information by the respondents was to keep current and latest information by referring dailies as well as to abreast in their subjects. The main problem aroused is failure in power supply (Electricity), computer facilities, and poor shelf arrangement.

Tucci conducted a study is to assess and provide for the information needs of the Faculty of the Schools of Science and Engineering at The College of New Jersey (TCNJ) in the digital age. Focus Group standardized protocol with a trained facilitator and recorder was employed to gather data from 47% of the computer science and engineering faculty. The facilitator employed a pre-designed guide to elicit responses about current and desired library collections and services. Nine major information behaviors or issues were identified as needing to be addressed.

Kerins, Madden, and Fulton reported the results of two empirical studies which explored the information seeking behavior of engineering and law students in Ireland. Results revealed similar patterns in the information seeking behavior between students studying to become professionals and information seeking patterns of these groups identified in the Leckie et al. model. Students learned their information seeking strategies, including effective and less effective approaches, from educators. Mis-perceptions of the role and value of libraries and information professionals in their studies were common, and as a result, students often adopted information seeking strategies that excluded libraries and library staff

5.0 Methodology

An extensive literature search was conducted to find out the related literature. A wide variety of Primary and secondary resources databases were consulted. The study covers six engineering colleges in Trivandrum district. The population consists of final year B. Tech students. The sample consists of 300 students from various departments. Hence simple random sampling is adopted for data collection. Data is collected using a structured questionnaire. The questionnaire is divided in to four parts. The first part deals with the personal information. The second part aimed at information needs. The third part deals purpose and the fourth part deals with services of the library. A total of 300 students were identified and questionnaires were distributed. 249 questionnaires were clearly filled and returned back. Data obtained through questionnaire was tabulated, analyzed and interpreted using Microsoft Office Excel 2010 and SPSS version 20 statistical packages.

6.0 Scope of the study

The study was conducted in six engineering colleges in Trivandrum city. It includes two aided; two government and two private engineering colleges. Only final year B. Tech students are included in the study.

7.0 Analysis and Interpretation

7.1 Gender and Age Wise Distribution of Respondents : Students belonging to both the genders are equally doing their higher studies in all branches of knowledge. There may be students of different age groups. An analysis was conducted on gender and age of the respondents and is given in Table 1.

Table 1: Gender Wise Distribution of Respondents

Gender	No. of Respondents	Percentage
Female	154	61.8
Male	95	38.2

Table 1 shows that among 249 students, majority of the respondents i.e. 154(61.8%) are female and 95(38.2%) respondents are males.

Table 1(a)- Age Wise Distribution of Respondents

Age	No. of Respondents	Percentage
<20	0	0
20-23	235	94.4
24-27	14	5.6
>27	0	0
Total	249	100

Table 1(a) describes the age-wise distribution of respondents. Majority of the respondents i.e. 235 (94.4%) belong to the age category of 20-23 years and only 14 respondents belong to the age group of 24-27 (5.6 %). Number of respondents below 20 year and above 27 years is 0.

7.2 Sources Used to Locate Information in Library

Students will approach library resources in altered manner. Some may directly approach for their needed information. The strategy of seeking information is based on their familiarity with the tools and services in the library. The respondents were asked to rate the sources used to locate the relevant information. The response is indicated in Table 2.

Table 2: Sources Used to Locate Information in Library

Sr. No	Source	Respondents	Percentage
1	Friends	249	100
2	Librarian/library staff	248	99.6
3	Go to racks	232	93.2
4	OPAC	93	37.3
5	Call Numbers	53	21.3

Table 2 shows that all the respondents consult friends while searching library. Nearly all of them consult librarian or library staff to find out desired information. Among them 93.2 percent go straight to racks to locate information and 37.3 percent use OPAC to locate information. Only 21.3% percent students replied that they use call numbers to locate information.

7.3 Purpose of Library Visit: Students visit libraries for a variety of purposes like preparing to seminars, to prepare for competitive exams, to read entertaining books, to use reference books etc. The responses from the students are indicated in Table 3.

Table 3: Purpose of Library Visit

Sr. No.	Purpose	No. of Respondents	Percentage
1	Seminar preparation	249	100
2	Research work	249	100
3	Borrow books	249	100
4	Read text books	249	100
5	Refer question paper	249	100
7	Newspaper/magazines	233	93.6
9	Browse Internet	231	92.8
10	To read journals	53	21.3

Table 3 shows that all the users visit library to prepare seminar/research work, to borrow books, to read text books and refer question paper. 93.6% visit library to read newspaper and magazines. Among the respondents, 92.8% use library to surf internet.

7.4 Type of Sources Preferred

Information is available in a variety of forms like literature books, reference books, subject books, popular magazines, newspapers etc. An analysis was conducted on the preferred format and it is graphically represented in Figure 1.

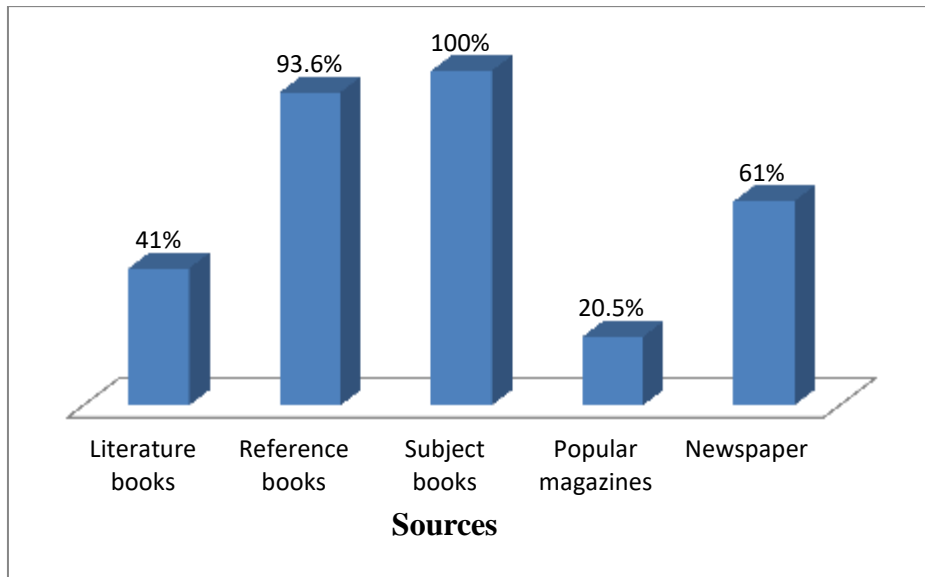


Fig. 1: Types of sources preferred

It is clear from the figure that, all the respondents' 249 (100%) select subject books from the library. Out of the total, 233 (93.6%) select reference books, 152 (61%) select newspaper. 102 (41%) respondents select literature books and only 51 (20.5%) respondents select popular magazines. It reveals that subject books and reference books are most useful documents to engineering students.

7.5 Preference for Newspaper

Newspaper is a serial publication containing news about current events, other informative articles about politics, sports, arts and so on. Newspapers provide variety of information to users. The respondents were asked to identify the preference of newspapers that they used for reading by given on the following category. Preference of newspapers given by the respondents is shown in the figure 2 below.

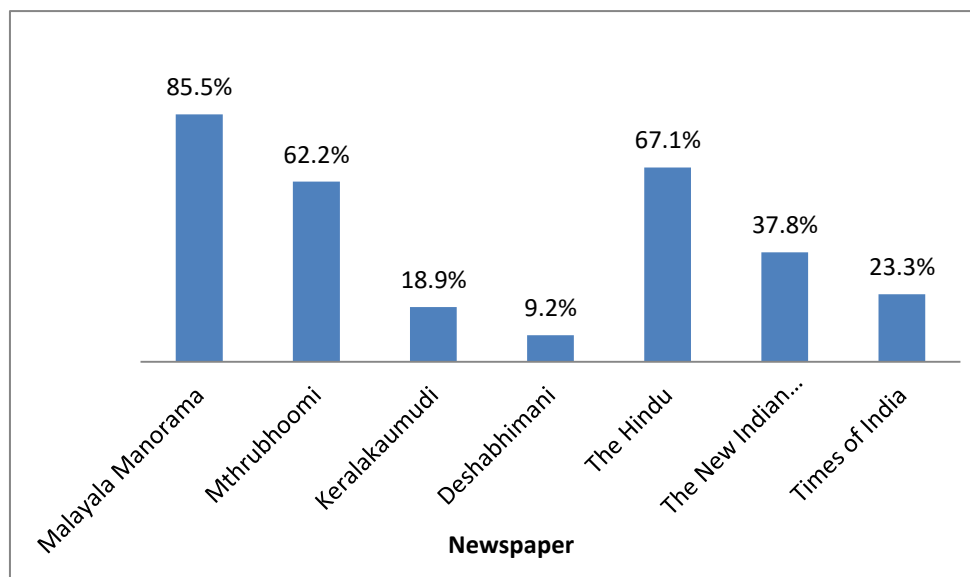


Fig.2: Preference of newspaper

It is clear that, majority of the respondents prefer (85.5%) Malayala Manorama and 67.1% prefer The Hindu, 62.2% prefer Mathrubhoomi, the New Indian Express is preferred by 37.8%, Times of India is preferred by 37.85% of the respondents and the least preference goes for Keralakaumudi and Deshabhimani with a response rate of 18.9% and 9.2 % respectively.

7.6 Association Between Gender and Online Search.

In order to assess the association between gender and online search, research hypothesis is formulated as H1: There is no significant association between gender and online search. Hypothesis is tested using chi square test. The result is shown in table 4.

Table 4: Association Between Gender And Frequency of Online Search.

Time Spent	Gender		χ^2	P value
	Male	Female		
Up to 1 hour	61	93	1.473	0.479
	-24.40%	-37.34%		
1-2 hour	34	59		
	-13.60%	-23.69%		
2-4 hour		2		
	0	-0.80%		

From the table it is observed that there is no significant association between age and online search. Thus hypothesis H1 is accepted. The frequency of using online search by male is 24.4% for up to one hour, (chi-square =1.473, P=0.479>0.05). The frequency of using online search from 1-2 hour is 13.6%. There is no male respondent search 2-4 hours. The frequency of using online search by female is 37.34% for up to one hour. The frequency of using online search from 1-2 hour is 23.69%. There is only 2 female respondents is searching 2-4 hours.

7.7 Source to Locate Latest Collection

Library will add new documents to its collection. The respondents were asked to rate the sources that help them in locating latest collection in a library. It is indicated in Figure 3.

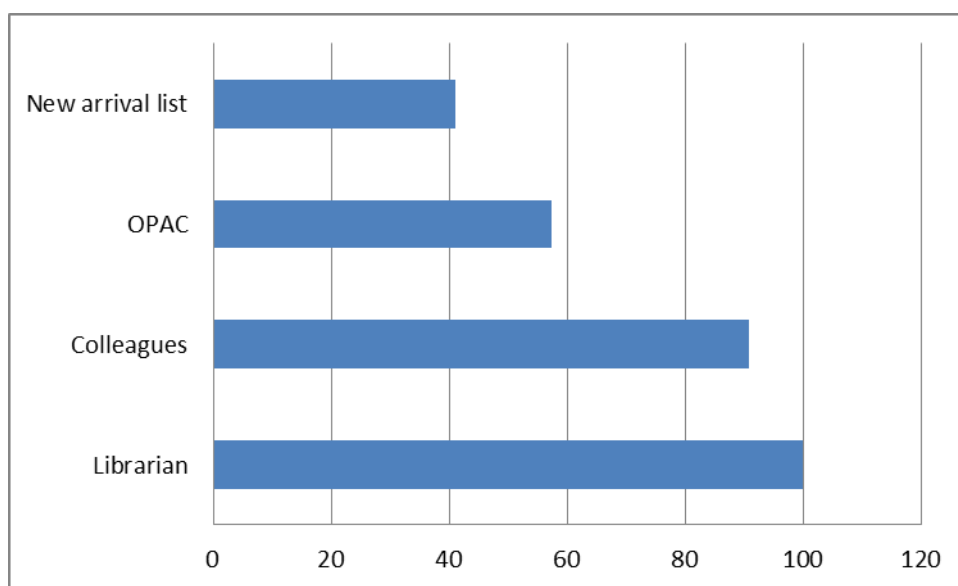


Fig.3: Source to locate latest collection

The above graph describes the tools used by the respondents to know about the latest collection in the library. It is clear that, the entire respondents consult librarian (100%) to locate the latest collection More than 90% of them seek help from colleagues. More than half of the respondents (57.4) use library OPAC and 41% look in new arrival list to locate latest collection.

7.8 Familiarity With Print Form

Now almost all type of information source appears in print and electronic format. The easiness prompted users to use e-versions than pint versions. A survey was conducted to analyze the use of print version among the respondents. The distribution is tabularly represented in Table 5.

Table 5: Use of Print Versions

Print Form	Very Often	Occasionally	Never
Encyclopedia	62 (25%)	187 (75%)	0%
Yearbooks& dictionaries	37 (15%)	212 (85%)	0%
Language dictionaries	139 (55.80%)	110 (44.20%)	0%
Bibliographical dictionaries	0 (0%)	194 (77.90%)	55 (22%)
Subject dictionaries	187 (75%)	62 (25.00%)	0 (0%)
Abstracting journals	87 (35%)	149 (60%)	12 (5%)
Indexing journals	75 (30%)	162 (65.00%)	12 (5%)

Table 5 shows that majority (75%) of the respondents use encyclopedia occasionally and 1/4th (25%) of them use it very often. Year books and dictionaries were used occasionally by 85% respondents and 15% of them use it very often. Language dictionaries were used by 55.8 percent very often. More than 78 respondents (77.90%) use bibliographical dictionaries occasionally and 22% never used it. In the case of subject dictionaries 75% prefer it very often and 25% use it occasionally. Majority of the students (60%) utilize abstracting journals occasionally but 35% and 5% prefer it very often and occasionally respectively. Indexing journals were used occasionally by 65 percent of respondents.

7.9 Awareness About Library Services

The college libraries introduce a variety of services to satisfy the information needs of the users in accessing the information in the library. But the students are unaware of all the services being rendered by the colleges. As such, an attempt is made to find out the nature of services, which the students know is given in table 6.

Table 6: Awareness About Library Services

Sr. No.	Services	Extremely aware	Moderately aware	Somewhat aware	Not at all aware
1	Current Awareness Service	162 (65 %)	45 (18%)	30 (12%)	12 (5%)
2	Inter library loan	112 (45%)	62 (25%)	25 (10%)	50 (20%)
3	Data base search	174 (70%)	50 (20%)	15 (6%)	10 (4%)
4	Selective dissemination of information	100 (40%)	75 (30%)	62 (25%)	12 (5%)
5	Reference service	190 (76%)	30 (12%)	25 (10%)	52 (2%)
6	Newspaper clipping service	154 (62%)	37 (15%)	32 (13%)	26 (10%)
7	Photocopying	212 (85%)	22 (9%)	12 (5%)	3 (1%)
8	Bibliographical service	87 (35%)	25 (10%)	75 (30%)	62 (25%)
9	Translation service	62 (25%)	37 (15%)	50 (20%)	100 (40%)
10	Facsimile service	62 (25%)	70 (28%)	37 (15%)	80 (32%)
11	Internet search	212 (85%)	37 (15%)	0 (0%)	0 (0%)

The table 6 shows that, majority of the respondents (85%) are extremely aware about photocopying and internet search services, about 70% is extremely aware about Data base search and 76% are extremely aware about Reference service. CAS is extremely aware to 65 % and newspaper clipping to 62%.

As per the table, Thirty percent of the total respondents is moderately aware about SDI, 28% is moderately aware about facsimile service, and 25% about interlibrary loan. Database search is moderately aware by only 20% of the total respondents. Newspaper clipping service translation service and internet search is moderately aware by 15% each.30 respondents is moderately aware about reference service. Bibliographical service and photocopying is rated by 10% and 9% respectively. Out of total 249 respondents, all are not at all aware about translation service. Data base search about 4% and only 1% is not at tall aware about photocopying service.

7.10 Opinion About Library Service

Libraries play an important role in students. It provided many service like reference services, interlibrary loan, CD search etc. Respondents were asked to rate opinion about different library services .The responds are rated in Table 7.

Table 7: Opinion About Library Service

Sr. No	Opinion	Excellent	Very Good	Good	Poor
1	Reference service	162 (65 %)	45 (18%)	30 (12%)	12 (5%)
2	Interlibrary loan	112 (45%)	62 (25%)	25 (10%)	50 (20%)
3	Current awareness service	174 (70%)	50 (20%)	15 (6%)	10 (4%)
4	Newspaper clipping service	100 (40%)	75 (30%)	62 (25%)	12 (5%)
5	Bibliographical service	154 (62%)	37(15%)	32 (13%)	25 (10%)
6	Internet search	189 (76%)	30 (12%)	25 (10%)	5 (2%)
7	CD search	87 (35%)	25 (10%)	75 (30%)	62 (25%)
8	Photocopying service	212 (85%)	22 (9%)	12 (5%)	3 (1%)
9	Translation service	62 (25%)	37 (15%)	50 (20%)	100 (40%)
10	Facsimile service	62 (25%)	70 (28%)	37 (15%)	80 (32%)

Table 7 shows the opinion about service provided by library. Out of the total respondents, 162 opinion that reference service provided by library as excellent, 45 as very good, 30 and 12 as good and poor respectively. Interlibrary loan, one of the service provided by 112 respond excellent and 62 as very good. Only 25 and 15 replied good and poor respectively. 174 students point out current awareness service as excellent and 10 as poor. In the case of newspaper clipping service 40% students opinion that it is excellent and 5 % view it as poor. Among the total respondents 154 point that bibliographical service provided by library as excellent. About 78% replied that internet search is excellent and only 2 % opinioned that it is poor. Only 35 % and 25 % point that CD search is excellent and poor respectively. Majority of the respondents are (85%) satisfied with services like photocopying service. 22,12,3 viewed it as very good, good and poor respectively. Among the services the respondents are least satisfied with translation service that is, 100. In the case of facsimile service only 24 % viewed as excellent and 32 % as poor.

7.11 Familiarity of Online Publication

A publication is something made to communicate with the public. Publications are usually printed on paper. Online publications are delivered through the internet. The familiarities about online publications of the students are tabulated in Table 8.

Table 8: Familiarity of Online Publication

Sl. No	Online	Very often	Occasionally	Never
1	Encyclopedia	62 (25%)	149 (60%)	37 (15%)
2	Yearbooks& dictionaries	37 (15%)	174 (70%)	37 (15%)
3	Language dictionaries	100 (40%)	87 (35%)	62 (25%)
4	Bibliographical dictionaries	25 (10%)	137 (55%)	87 (35%)
5	Subject dictionaries	187 (75%)	50 (20%)	12 (5%)
6	Abstracting journals	87 (35%)	149 (60%)	12 (5%)
7	Indexing journals	75 (30%)	162 (65%)	12 (5%)

From Table 8 show that 62(25%) of the students prefer online publication like encyclopedia very often and 149(60%) respondents use it occasionally.15% of them never use it. In the case of yearbooks and dictionaries 37 prefer use of it very often and 174 utilize it occasionally. Similar to encyclopedia 37 of them never use it. While considering language dictionaries 40% uses it very often.35% prefer it occasionally and 62 never use it. Bibliographical dictionaries are preferred by 25 very often and 137 uses it occasionally and 35% never prefer it. Subject dictionaries is utilized by 187 students very often.50 and 12 students occasionally and never use it considering abstracting journals 87 uses it very often and 149 prefer it occasionally .12(5%)never used it. Indexing journals, another online publications is preferred by 75, 162 students prefer it very often and occasionally and 12(5%) never used it.

7.12 Preference of E-resource Used

An electronic resource is any information source that the library provides access to in an electronic format. The library has purchased subscriptions to many electronic information resources in order to provide the students with access to them with free of charge. Table 9 shows the different types of e resource used in the library for seeking information.

Table 9: Preference of E-Resource

Sr. No.	Use of E resources	Always	Very often	Sometimes	Rarely
1	E journals	162 (65%)	45 (18%)	30 (12%)	12 (5%)
2	E theses and dissertation	174 (70%)	50 (20%)	15 (6%)	10 (4%)

3	E books	100 (40%)	75 (30%)	62 (25%)	12 (5%)
4	Subject gateways	154 (62%)	37 (15%)	32 (13%)	25 (10%)
5	Institutional repositories	62 (25%)	70 (28%)	37 (15%)	80 (32%)
6	Web page	87(35%)	25 (10%)	75 (30%)	62 (25%)

E- Journal is always used by 65% of the respondents. Only 5% is not aware of E- Journals. E- Thesis and dissertation is always used by 70 percent. E-Books are always used by all of them. Thirty percent are rarely use institutional repositories. Thirty five percent always use webpages.

7.13 Preference of E- data Base

An e-database is an organized collection of information, of a particular subject or multi disciplinary subject areas. The information of an e-database can be searched and retrieved electronically. The responses about e data base are tabulated in Table 10.

Table 10: Preference of E Data Base Used

Sr. No.	E-database	Response	Percentage
1	J gate	249	100
3	Elsevier	249	100
4	Proquest	249	100
5	NPTEL	231	92.8
6	ENGnet	224	90
7	Springer Link	213	85.5
8	GREENER	213	85.5
9	ACM	213	85.5
10	Knimus	207	83.1
11	INSPEC	198	79.5
12	INDEST	187	75.1
13	ASCE	176	70.7
14	IEEE	165	66.3
15	ASME	161	64.7

Table 10 shows that majority of the respondents use J-gate, Elsevier, DOAJ and Proquest. Around 93 percent prefer NPTEL. ACM, Greener and Springer Link is used by 85.5 percent of the respondents, Knimus is used by 83.1%, 198(79.5%) respondents use INSPEC, INDEST is used by 187 that is 75.1%, ASCE is used by 70.7% of the total respondents. out of the total respondents 64.7 is using IEEE and ASME is used by 64.7%.

7.14 Factors Considered in E-Resources Selection

Electronic resources (or e-resources) are materials in digital format accessible electronically. Respondents select electronic resources based on some criteria and also based on the information behavior of users. The data regarding factors considered by the respondents while selecting an electronic resource was collected and the distribution is diagrammatically represented in Figure 4.

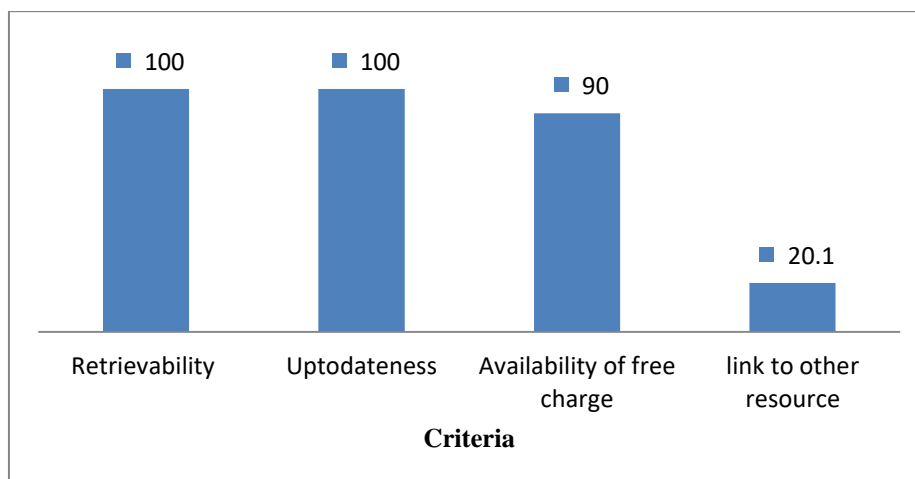


Fig. 4: E-resources Selection Criteria

All the respondents will consider number and relevance of retrieved results and up to datedness of retrieved information while selecting electronic resource. Free availability came in second position with 90% of the response among other factors. The least response is for link to other resources with only 20.1%.

7.15 Association Between Preferred Form and Gender

Association between age and online search, research hypothesis H2 is formulated as: There is significant association between preferred form and gender. Hypothesis is tested using chi-square test. The result is shown in the table 11.

Table 11: Association between Preferred Form and Gender

Preferred form	Gender			Total	X ²	P Value
	Category	Male	Female			
Print	Yes	95(38.15%)	154 (61.84%)	249 (100%)	1.123	.131
	No	0 (0%)	0 (0%)			
CD	Yes	36 (14.4%)	72 (28.9%)	108 (48.4%)	1.877	.171
	No	59(23.69%)	82 (32.93%)			
online	Yes	87(34.93%)	144 (57.83%)	231 (92.8%)	.362	.568
	No	8 (3.21%)	10 (4.01%)			

Not significant (>0.05); *: Significant (<0.05)

From the table it is observed that, p value is greater than 0.05. So there exist no significant association between preferred form and gender. Thus hypothesis H2 is rejected.

7.16 Barriers in Seeking Information

There are lots of problems faced by the students while seeking information.. Respondents were asked to identify the problems faced while seeking information. Responses were tabulated in the Table 12.

Table 12: Barriers in Seeking Information

Sr. No	Barriers	Respondents	Percentage
1	low speed internet	212	85.1
2	Limited working hours	207	83.1
3	Frequent power failure	188	75.5
6	Lack of information seeking skills	161	64.7
7	Lack of support from library staff	124	49.8
8	Lack of ICT skills	49	19.7
10	Restricted access	22	8.8
11	Copyright issues	0	0
12	No campus network	0	0

Majority of the respondents (85%) faced the problem in low speed internet. For another 83% of respondents point out limited working hours as a major problem. For 3/4th portion of students, power failure is the problem. Lack of information seeking skills acts as a barrier for 64.7%. Around half of the respondents (49.8%) didn't get support from library staff. Absence of ICT skills and restricted access to resources are barriers to 19.7% and 8.8% of respondents.

8.0 Major Findings

The major findings are listed below:

1. Majority of the respondents (61.8%) are females. About 95% of them belong to age group between 20 and 23(94.4%).
2. All respondents consult friends and99.6% respondents consult librarian or library staff, to locate information in library.
3. All the users visit library for prepare seminar/research work, to borrow books, to read text books and refer question paper. 93.6% visit library to read newspaper and magazines. Among the respondents, 92.8% use library to surf internet.
4. In the case of newspapers, most of the respondents read Malayala Manorama (85.5%) followed by Hindu (67.1%).

5. All the respondents (100%) select subject books from the library. Out of the total, 233(93.6%) select reference books.
6. Majority of the respondents consult librarian (100%) to know about the new arrivals.
7. All the students (100%) prefer print form than digital or online version of information sources.
8. Above 85% respondents are extremely aware about photocopying and internet search services in the library.
9. Majority of the students prefer printed reference sources. Online Encyclopedia is very often is used by 60% and 149 uses it occasionally. In the case of yearbooks and dictionaries 37 prefer use of it very often and 174 utilize it occasionally.
10. More than 70% respondents use E-thesis and Dissertation always, followed by E-journals (65%) for seeking desired information.
11. A large portion of the respondents use J gate, Elsevier, DOAJ and Proquest.
12. All the respondents (100%) will consider number and relevance of retrieved results and uptodateness of retrieved information while selecting electronic resource.
13. Majority of the respondents reply that slow access speed is the important barrier faced during information seeking.

9.0 Conclusion

Information has become the most important element for progress in the society. Library can play a major role in providing relevant information. The main objective of the study was to identify the information behaviour of engineering students. The study leads to the conclusions that, majority of students are using internet and e-resources to access information. All the students visit library for prepare seminar/research work, to borrow books, to read text books and refer question paper. Among printed sources, reference sources are more preferred. The respondents depend more on librarians or library to seek required information. Information became essential for all, so every library need accurate and various types of information resources to perform their work.

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