



## Information Use Pattern of the Students in Engineering Colleges: Role of Libraries

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### Abstract

*This paper gives the information about the role of the libraries in the information needs of the students in their needs point of view. Mostly the students use the libraries for their academic point of view (means for their examinations) but some of the students want to learn subject and some of the students want to use for research purpose. The main aim of this paper is to conduct a survey to evaluate the role of the library in information needs of the students in engineering colleges. The results show the students need the ready information for their examinations purpose and the core information for their knowledge purpose and standard information for their research purposes. The result suggests the arrangements and modifications to be implemented in the library to meet the information needs of the students.*

**Keywords:** Information needs, engineering students, role of the library, information use pattern, usage standard books.

### Introduction

This paper gives the information regarding the information needs and the information usage of the students to meet their needs. Here mostly students are utilizing the library resources to prepare for examinations, to improve their subject knowledge and for their research purposes. In engineering college library we have the availability of books for different subjects with different standards. Very commonly students prefer low standard text books (simple language) written by local authors prefers to understand the basic concept and to learn the topic. Similarly students prefer medium standard text books (National authors) to improve their subject knowledge. Finally students prefer high standard text books (International authors) for their research purposes.

Here the usage of the library resources (books) and is different for different students, different courses and different branches. In engineering college, most of the students complete their courses with an aggregate percentage of 60-80%. The role of the library in their percentage was investigated. Similarly the role of the library in their knowledge development and for research purpose was interpreted. From the conclusions the further modifications and future implementations were interpreted and guidelines were prepared to meet the student's needs and to provide effective services.

**Importance of the Study:** In our engineering college we have mostly core branches like Electrical and Electronics Engineering (EEE), Electronics and Communications Engineering (ECE), Computer Science Engineering (CSE), Mechanical Engineering (MCEH) and Civil Engineering (CIVIL). In post graduate study we have specializations like

High Voltage Engineering and Advanced Power Systems, Instrumentation and Controls, Computer Science and Engineering, Information Technology, Civil Engineering, Mechanical Engineering and Transportation Engineering etc. Ph.D is available in all departments. So the requirements of the students in all the above courses are different. Hence a study is required to main the library resources according to the student requirements to meet their needs.

Till now we have various researches related to behavior of engineering students, information use pattern by the engineering faculty, information needs by the engineering faculty, information seeking behavior of the engineering faculty etc.

If course wise students are preferring books to meet their different individuals needs and the same prefer different standard books for their needs. Hence there is a relation between individual needs and the level of standard books preferred.

Hence there is a need of this type of study to improve the effectiveness of library services to provide quality services to meet the needs of the students for their different purposes.

**Literature Review:** Here are some of the important literatures related to the present study conducted at various places in and around the world.

“The students and faculty of the schools of civil and mechanical engineering were asked about how they use the library. They were also asked questions concerning their information seeking habits. The responses from undergraduate students, graduate students and faculty are compared, revealing expected and unexpected patterns<sup>1</sup>.”

Haglund and Olsson worked previously on information behavior. Their findings revealed that most of the research people used Google as their default browser. Research people were confident of their self-sufficiency in access to electronic information. They reported that the research persons have very little contact with the library, and hence little knowledge about the value librarians' specialized knowledge and training could add<sup>2</sup>.

Panwar and Vyas carried out a study of libraries of the two women colleges affiliated to the University of Delhi under name "User's Survey of the Women College Libraries". Data was collected from undergraduate, postgraduate students and teachers of social sciences, using questionnaire. It was supplemented by select interviews. Survey revealed that in laterally established college more books were added every year as compared to other one, because it had more budgets for books. Library services and physical facilities did not have a satisfactory picture. Properly planned orientation was needed<sup>3</sup>.

"Liao et al conducted a comparative study of the information needs and information seeking behaviour of international graduate students and American graduate students under title "Information-Seeking Behaviour of International Graduate Students vs. American Graduate Students: A User Study at VirginiaTech 2005". Study is based on the opinions collected through online survey<sup>4</sup>."

## Methodology

A questionnaire was prepared and distributed among the UG, PG and Research Scholars of the Engineering College. The questionnaires were allowed to fill within one week and the received questionnaires were analyzed using statistical methods which needs help of statistical tools based on the referenced methodology<sup>5</sup>.

The various classifications based on the course wise, department wise, sex wise, need wise, etc were prepared and completely analyzed in next section.

The standard statistical methods were implemented to find the nature of the usage of the library resources by the students to meet their needs.

Here in this research three levels of courses were considered namely Under Graduate, Post Graduate and Doctor of Philosophy. In post graduate study we have considered M.Tech . In Graduate study five core branches were considered namely EEE, ECE, CSE, MECH and Civil. i. Initially all 400 questionnaires were distributed among the final year B.Tech students of all departments and 1<sup>st</sup> and 2<sup>nd</sup> year PG and Ph.D. students (each of 50 questionnaires). ii. The filled in questionnaires were collected within one week. iii. The received questionnaires were analyzed and the results were tabulated. iv.

The tabulated values were further analyzed using statistical tools.

Here one of the popular statistical methods was used to analyze the results. The square of the standard normal variable is called as chi-square. Chi-square analysis for testing the equality of proportion was carried out as per standard procedure explains in satisfaction, level of significance with regard to variables such as reasons of vandalism and users perception towards various forms of vandalism etc. This is "any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true, or any in which this is asymptotically true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-squared distribution as closely as desired by making the sample size large enough<sup>6</sup>".

**Analysis:** This survey was conducted on the UG, M.Tech and Ph.D. students. The usage of library resources by the above mentioned students is different and purpose of usage is also different. Mainly student purposes are divided into three categories namely examinations wise, subject wise and research wise. The library resources mainly books were divided into mainly three different types of information namely ready information, core information and standard information based on the pattern mentioned in literature<sup>7</sup>.

The students of various courses utilizing the above mentioned sources to meet their needs. The usage is different from branch to branch and course to course. The results were surprised and have given new guidelines to manage the library resources (books) and the library staff.

The following table-1 gives the classification of the questionnaires distributed among the various students versus the number of students responded. This table was prepared based on course wise.

**Table-1**  
**Classification of Courses based on Number of Questionnaires Distributed Vs Respondents**

S.No	Course	Distributed	Responded	Percentage (%)
1	B.Tech	250	238	95.2
2	M.Tech	100	89	89
3	Ph.D	50	50	100
Total		400	377	94.25

It clearly reveals that cent percent respondents are from Ph.D and the next highest respondents are from B.Tech course.

The following table-2 gives the classification of the respondents based on the sex wise and age wise. Here the age factor was divided with the scaling factor of 5 years. This table was prepared based on course wise.

**Table-2**  
**Classification of course wise respondents based on sex wise and age wise**

S.No	Course	Sex		Total	Age			Total
		Male	Female		20-25 years	25-30 years	>30 years	
1	B.Tech	157 (65.97)	81 (34.03)	238 (63.13*)	238 (100.00)	0 (0.00)	0 (0.00)	238 (63.13*)
2	M.Tech	64 (71.91)	25 (28.09)	89 (23.61*)	48 (53.93)	32 (35.96)	9 (10.11)	89 (23.61*)
3	PH.D	43 (86.00)	7 (14.00)	50 (13.26*)	0 (0.00)	13 (26.00)	37 (74.00)	50 (13.26*)
TOTAL		293 (70.03*)	132 (29.97*)	377 (100.00)	315 (75.86*)	59 (11.94*)	51 (12.20*)	377 (100.0)

\* Represents, percentages are with respect to total respondents (i.e. 377)

**Table-3**  
**Classification of course wise respondents based on department wise**

S.No	Course	Departments					Total
		EEE	ECE	CSE	MECH	CIVIL	
1	B.Tech	48 (20.17)	49 (20.59)	47 (19.75)	49 (20.59)	45 (18.91)	238 (63.13*)
2	M.Tech	18 (20.22)	19 (21.35)	18 (20.22)	19 (21.35)	15 (16.85)	89 (23.61*)
3	PH.D	10 (20.00)	10 (20.00)	10 (20.00)	10 (20.00)	10 (20.00)	50 (13.26*)
TOTAL		76 (20.16*)	78 (20.69*)	75 (19.89*)	78 (20.69*)	70 (18.57*)	377 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 377)

All other numbers with in brackets are percentages with respect to their course wise totals

This table gives very useful and important information regarding the nature of the students visiting library. Here age factor was divided into three categories namely 20-25 years, and 25-30 years and greater than 30 years. Because college doesn't have students whose age was less than 20 years. The main inferences were described in results section.

The following table-3 gives the classification of course wise respondents based on departments. Here basically we have five departments namely EEE, ECE, CSE, MECH and Civil. So every student comes under any one of the department. College has five branches in B.Tech and each of two specializations in M.Tech and Ph.D in five departments.

All other numbers with in brackets are percentages with respect to their course wise totals

This table gives one of the important information regarding department wise respondents for the corresponding courses. On an average from each department we have 20 % of the overall response. This shows that all department students are responded equally.

The following table-4 gives the classification of department wise M.Tech respondents with respect to their year of study. This gives one of the important information regarding the usage of text books for their needs (Ex. for exams, for projects, for research).

All other numbers with in brackets are percentages with respect to their year of study wise totals

This table almost confirmed that second year students were responded 10 percent more than the first year students. Because they need the use of library for their project work. From this table first year students are utilizing the library for examinations purpose only. The major findings were discussed in results section.

The following table-5 gives the classification of course wise respondents based on their aggregate percentage of marks. For B.Tech final year students up to 3<sup>rd</sup> year, for M.Tech I year students up to I semester, for M.Tech II year students up to I year and for Ph.D students up to I year were tabulated. The percentage was divided into six groups namely, '<50', '50-60', '60-70', '70-80', '80-90' and '>90'.

**Table-4**  
**Classification of department wise M.Tech respondents based on year of study wise**

S.No	Year of Study	Departments					Total
		EEE	ECE	CSE	MECH	CIVIL	
1	I – Year	9 (50.00)	9 (47.37)	8 (44.44)	9 (47.37)	6 (40.00)	40 (44.94*)
2	II – Year	9 (50.00)	10 (52.63)	10 (55.56)	10 (52.63)	9 (60.00)	49 (55.06*)
TOTAL		18 (20.22*)	19 (21.35*)	18 (20.22*)	19 (21.35*)	15 (16.85*)	89 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 89)

**Table-5**  
**Classification of course wise respondents based on their percentage**

S.No	Course	Marks Percentage						PASSED	Total
		<50	50-60	60-70	70-80	80-90	>90		
1	B.Tech	43 (18.07)	46 (19.33)	69 (28.99)	41 (17.23)	26 (10.92)	13 (5.46)	195 (81.93)	238 (63.13*)
2	M.Tech-I	5 (12.50)	6 (15.00)	8 (20.00)	10 (25.00)	10 (25.00)	1 (2.50)	35 (87.50)	40 (10.61*)
3	M.Tech-II	8 (16.33)	10 (20.41)	6 (12.24)	11 (22.45)	12 (24.49)	2 (4.08)	41 (83.67)	49 (13.00*)
4	PH.D	1 (2.00)	6 (12.00)	28 (56.00)	9 (18.00)	5 (10.00)	1 (2.00)	49 (98.00)	50 (13.26*)
Total		57 (15.12*)	68 (18.04*)	111 (29.44*)	71 (18.83*)	53 (14.06*)	17 (4.51*)	320 (84.88*)	377 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 377)

**Table-6**  
**Classification of course wise passed respondents based on books purpose**

S.No	Course	Books Purpose			Total
		Exam	Subject	Research	
1	B.Tech	129 (66.15)	59 (30.26)	7 (3.59)	195 (60.94*)
2	M.Tech - I	21 (60.00)	11 (31.43)	3 (8.57)	35 (10.94*)
3	M.Tech - II	0 (0.00)	13 (31.71)	28 (68.29)	41 (12.81*)
4	PH.D	5 (10.20)	8 (16.33)	36 (73.47)	49 (15.31*)
Total		155 (48.44*)	91 (28.44*)	74 (23.13*)	320 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 320)

All other numbers with in brackets are percentages with respect to their course wise totals

This table confirms 2/3<sup>rd</sup> of the total respondents are gaining percentage more than 60 % and among them most of the respondents are getting percentage between 60-70%.

The following table-6 shows the classification of course wise respondents based on books purpose to meet their needs. This can give the clear idea about the usage pattern of the

respondents and the further modifications and implementations to be done for effective services to the students.

All other numbers with in brackets are percentages with respect to their course wise totals

This table clear describes more than 60 % of the B.Tech – IV year and M.Tech – I year students are preferring library to meet their examinations purpose and more than 60 % of the M.Tech – II year and Ph.D students are preferring library to meet their

research purposes. The detailed analysis was described in results section.

The following table-7 shows the classification of the department wise respondents based on the books purpose to meet their needs.

All other numbers with in brackets are percentages with respect to their books purpose wise totals

This table reveals that from each department we have the response rate of 20% and most of the respondents are from Civil Engineering Department and least respondents are from EEE department. The detailed observations were discussed in next section.

The following Table.8 shows the classification of the course wise passed respondents based on the level of the books preferred. There are mainly three levels of books were considered namely, low standard text books authored by local authors, medium standard text books written by national authors

and high standard text books written by international authors. Here multiple options were allowed and corresponding responses were tabulated below.

All other numbers with in brackets are percentages with respect to their course wise totals

From this table there is a relations between standard of the books preferred and the purpose of the books preferred.

The following Table.9 shows the classification of the passed respondents based on their books purpose and standard of the books preferred.

All numbers with in brackets are percentages with respect to total respondents (i.e. 320)

This confirms that students prefers low standard books for their examination purpose, medium standard text books for subject purpose and high standard text books for research purposes. The same can be confirmed by performing chi-square test on the above table.

**Table-7**  
**Classification of department wise passed respondents based on the books purpose**

S.No	Purpose	Departments					Total
		EEE	ECE	CSE	MECH	CIVIL	
1	Exam	31 (20.00)	32 (20.65)	30 (19.35)	32 (20.65)	30 (19.35)	155 (48.44*)
2	Subject	16 (17.58)	17 (18.68)	16 (17.58)	17 (18.68)	25 (27.47)	91 (28.44*)
3	Research	14 (18.92)	15 (20.27)	16 (21.62)	14 (18.92)	15 (20.27)	74 (23.13*)
Total		61 (19.06*)	64 (20.00*)	62 (19.38*)	63 (19.69*)	70 (21.88*)	320 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 320)

**Table-8**  
**Classification of course wise passed respondents based on the standard of books preferred**

S.No	Course	Books Standard			Total
		Low	Medium	High	
1	B.Tech	137 (70.26)	48 (24.62)	10 (5.13)	195 (60.94*)
2	M.Tech - I	19 (54.29)	9 (25.71)	7 (20.00)	35 (10.94*)
3	M.Tech - II	0 (0.00)	27 (65.85)	14 (34.15)	41 (12.81*)
4	PH.D	1 (2.04)	18 (36.73)	30 (61.22)	49 (15.31*)
Total		157 (49.06*)	102 (31.88*)	61 (19.06*)	320 (100.00)

\* Represents, percentages are with respect to total respondents (i.e. 320)

**Table-9**  
**Classification of the respondents based on books purpose and standard of the books**

S.No	Purpose	Books Standard			Total
		Low	Medium	High	
1	Exam	112 (35.00)	41 (12.81)	2 (0.63)	155 (48.44)
2	Subject	28 (8.75)	49 (15.31)	14 (4.38)	91 (28.44)
3	Research	17 (5.31)	12 (3.75)	45 (14.06)	74 (23.13)
Total		157 (49.06)	102 (31.88)	61 (19.060)	320 (100.00)

**Table- 10**  
**Chi-Square Test results based on the following relations**

Chi-square Relation	Chi-square calculated value	Degrees of freedom (DOF)	Level of significance ( $\alpha$ )	Chi-square table value	Nature of relation
Low-Medium	29.17308	2	0.05	10.597	Significant
Low-High	100.7062	2	0.05	10.597	Significant
Medium-High	67.90521	2	0.05	10.597	Significant
Exam-Subject	46.61589	2	0.05	10.597	Significant
Exam-Research	110.3215	2	0.05	10.597	Significant
Subject-Research	40.09374	2	0.05	10.597	Significant

This table confirms that there is a significant relation between all relations. Because the calculated chi-square value is greater than the chi-square table value. At 2 degrees of freedom with 0.05 level of significance the nature of relation is significant.

**Inferences:** These are the following inferences were drawn from the above study. i. The response rate of the students is 94.25%. ii. 100% response from the Ph.D. students. iii. No B.Tech student has age more than 25 years and No Ph.D. student has age less than 25 years. iv. Highest response rate from ECE (20.69%) and MECH (20.69%) and least response rate from CIVIL (18.57%). v. In M.Tech, 55.06% 2<sup>nd</sup> year students were responded and 44.94% of the 1<sup>st</sup> year students were responded. vi. We have 84.88% of the passed students (passed in their academic examinations). (320/377) .vii. In this passed students, Ph.D's has highest percentage of 98% and least percentage for B.Tech (81.93%). viii. In B.Tech, 28.99% of the students has academic percentage between 60-70%, In M.Tech-I, 25.00% of the students has academic percentage between 70-80% and 80-90%, In M.Tech-II, 24.49% of the students has academic percentage between 80-90% and In Ph.D, 56.00% of the students have academic percentage between 60-70%. ix. Totally 29.44% of the responded passed students have academic percentage between 60-70%. x. In B.Tech, 66.15% of the students are utilizing books for exam purpose, In M.Tech-I, 60.00% of the students are utilizing books for exam purpose, In M.Tech-II, 68.29% of the students are utilizing books for research purpose, and In Ph.D, 73.47% of the students are utilizing books for research purpose. xi. Totally 48.44% of the

responded passed students are using books for their examination purpose. xii. For exam purpose ECE (20.65%) and MECH (20.65%) of the students are using library resources, For subject purpose CIVIL (27.47%) of the students are using library resources and for research purpose CSE (21.62%) of the students are using library resources. xiii. Totally 21.88% of the responded passed students are using library resources. xiv. 70.26% of the responded passed B.Tech students prefer low standard text books, 65.85% of the responded passed M.Tech-II students prefer medium standard text books and 61.22% of the responded passed Ph.D students prefer high standard text books. xv. Totally 49.06% of the responded passed students are preferring low standard text books compared to other. xvi. Clear conclusions are (a) 35.00% of the responded passed students prefer low standard text books for their exam purposes. (b) 15.31% of the responded passed students prefer medium standard text books for their subject purposes. (c) 14.06% of the responded passed students prefer high standard text books for their research purposes. xviii. All relations considered in Table.10 have significant relation with 2 degrees of freedom and at 0.05 level of significance.

**Conclusion**

From this analysis we conclude that the students of the engineering college has different requirements to meet their needs like they need low standard text books for their examinations purpose, medium standard text books for their subject improvement purpose and high standard text books for

their research purposes. The same conclusion was confirmed by using statistical method (Chi-Square test).

Because of this, type of the books required in engineering college library to provide effective services to various students was revealed. So the further purchase of books will be made based on this requirements. As this analysis was performed in university engineering college, hence the nature of the students will not change.

**Further Research:** Here in this study, we have concentrated on the type of books required by the various students to meet their individual needs. There a scope to extend this works to high extent by considering the following areas. i. In B.Tech all years of students can be considered. ii. Year wise and subject wise analysis can be performed. iii. Branch wise and department wise analysis can be performed. iv. We have other courses like MBA, MCA and other courses in B.Tech can be considered. v. The age wise analysis can be performed by taking profession as variable.

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