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Study the Information Seeking Actions in a Digital Engineering College Environment

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Abstract - While it is one of the most often discussed topics in user research, the concept of "information seeking" is seldom defined. People probably already know the term means what they believe it means, therefore they do this when they seek information. Seeking knowledge "because one has a need to fulfill some aim," as the definition of information-seeking puts it, suggests that the concept of information-seeking is more closely related to the idea of need than to the idea of information. The information needs, information-gathering routines, and information-seeking habits of online engineering students are the primary focus of this study.

Keywords - information seeking, engineering students, research.

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INTRODUCTION

The pursuit of knowledge is a fundamental human activity. Though this may have always been the case, it is more widespread in the modern, so-called "information society" (Moore,1997). When it comes to running and managing a business, information is a vital resource. Managerial tasks including planning, organizing, leading, and regulating rely heavily on timely access to accurate information. Human and material resources must be managed effectively for any project to be completed successfully. This is impossible unless decision-makers have access to complete, timely, and relevant data. Humans are often considered to have been born naive or uneducated, and as such, they are expected to seek out information. People's information behaviors include how they define their information requirements, where they look for information, how they choose what they find, and how they put that knowledge to use. Information seeking is the intentional pursuit of knowledge in response to an unmet need. A person looking for anything could use either analog information sources.[1]

Understanding people's information-seeking and -use habits is essential for addressing their information requirements. Furthermore, this information may help uncover previously unknown information behaviors and user profiles, which may be utilized to refine and create brand-new information models. In addition, librarians and other information workers need a deeper understanding of Information-seeking behavior, needs, and usage in order to effectively serve their users.[2-3]

According to Wilson, the study of people's propensity to seek out information is a viable subfield of applied research, where funding is often allocated for projects with clear practical applications in system design and development. The information seeker's actions may be better understood if we consider a distinct set of reasons. This is a field of fundamental study, and although the information gleaned from it could be useful in the real world, it is not required to have any. Many of these studies focused on the library resources accessed, but not necessarily the library services required, and the vast majority of them relied on surveys and questionnaires to collect descriptive data on the information-seeking behavior of diverse groups.[4-5]

Users' requirements must serve as the only basis for all information management actions. Depending on their roles, responsibilities, and tasks, each user type has a unique set of information requirements. People from all walks of life and all levels of government, as well as business owners, academics, students, professionals in a variety of fields, factory employees, farmers, and the ordinary public, make up the user base. This user population has very different information requirements. Careful evaluation of information requirements is required prior to the process of matching information needs with sources of information. [6-7]

Information seekers, information demands, information supply gaps, and the sorts of information needed to accommodate a wide range of user needs are all subjects of current research.

Different user groups engage in different information-seeking behaviors, defined here as distinct strategies and actions to identify individual pieces of knowledge. [8-9]

A final consumer might be a user community. As a result, understanding information-seeking behavior is crucial for providing context for information phenomena and for optimizing information use via the control of key factors. Information and products are tailored more closely to the defined subset of consumers, and information service infrastructures are modified to better accommodate individual needs. The focus has to shift from the underlying technology to the user.[10-11]

MATERIAL AND METHODS

In this study, a questionnaire was handed out to participants. In this research, a structured questionnaire was employed to elicit the necessary data from the population under investigation. With these goals in mind and the relevant literature at hand, we developed a questionnaire to assess the information-seeking habits and practices of the staff and students at the sampled engineering universities. Additionally, a suitable sampling procedure was used to choose the sample from the population of interest. Later on, a structured questionnaire was employed to obtain the necessary data from engineering college students and teachers in Jalgaon. The acquired data was then collated and subjected to statistical tests to determine whether or not the study's hypotheses might be accepted or rejected.

Design Of Questionnaire

In order to better understand how engineering students and faculty utilize digital library resources, we need to learn more about how they go about finding the information they need. The current study used the Survey Method of research since it was the most acceptable and fit for the topic at hand. In brief, the first section of the questionnaire is concerned with general library information and background, the second section covers information seeking behavior skills and searching techniques, the third section discusses e-resources and the extent to which they are used, and the fourth section discusses familiarity with and competence in the use of information and communication technologies.

The participants in this research were chosen using a stratified random sampling technique. The population of interest was divided into strata by department, then by semester, and finally by department, branch, and category, from which a representative sample was drawn. Students and professors from chosen Jalgaon engineering institutes filled out a questionnaire to provide the bulk of the necessary information.

SELECTION OF SAMPLE

We set out to investigate the information-seeking patterns and online-search strategies of both students and teachers at engineering schools in Jalgaon. In the 2020-21 school year, Jalgaon was home to around 219 engineering schools. Only the most prominent subfields, such as Civil, Mechanical, Electrical, Electronic, Electronic & Communication, and Computer Science, will be considered. The rural colleges that are conveniently placed in rural areas were also given the attention they deserved. From the whole population, a representative sample was drawn using a stratified random sampling technique.

Table 1: A sample selction

Sl no	Regions	No of Colleges	Proportion of No of colleges	No of Colleges Selected	% colleges, selected
1	Amoda	34	0.6538*22=	14	41.11
2	Bhokar	18	0.3461*22=	8	44.44
	Total	52		22	

Jalgaon has 52 colleges; 22 were chosen using a proportional selection method; 14 came from the Amoda area, which has 34, and 8 came from the Bhokar region, which has 18, respectively.

STATISTICAL TREATMENTS

The data, analyses, and hypothesis testing all followed the following battery of statistical tests for maximum confidence in the findings.

To examine the relationship between two variables, the spearman correlation coefficient test was used.

$$r = 1 - \left(\frac{\sum 6d^2}{n(n^2-1)}\right)$$

Kendall's Coefficient of Concordance

Non-parametric statistics such as Kendall's coefficient of concordance (also known as Kendall's W) are useful tools for gauging the degree to which different raters of the same data agree with one another on the relative rankings of different groups of objects. The Kendall rank correlation coefficient is used to measure the closeness of rankings for a total of N items or people over several (k) sets of rankings. We often calculate Spearman's correlation coefficient when there are only two sets of rankings between two variables of 'N'objects, but Kendall's coefficient of concordance (W) is thought to be an accurate measure of assessing the degree of relationship among three or more sets of rankings.

Independent t-test

Test for statistical significance between two groups' mean scores using the independent samples t-test.

ANOVA test

Whether there are more than two groups, and you want to know if there is a statistically significant difference in the mean score, you may use the one-way ANOVA test.

RESULTS

Table 1: Gender wise distribution of respondents

S.No.	Gender	Frequency	Percentage
1	Male	430	63.24
2	Female	250	36.76
	Total	680	100.00

A majority of the people in the sample group are men, as shown in Table -1; women make up 36.76 percent of the sample group.

Table 2: Study participants were divided up according to their levels of qualification.

Sl.No.	Social Background	Frequency	Percentage
1	BE	280	39.71
2	M.Tech	355	53.68
3	Ph.D	45	6.62
	Total	680	100.00

Most respondents in this survey possess master's degrees in technology (M.Tech), followed by bachelor's degrees in technology (B.Tech), and only a small percentage of the faculty members in this study have doctoral degrees (Ph.D.). From what has been said, we may deduce that the vast majority of the people in the sample are postgraduates.

Table 3: The Nature of the Required Data

Sl. No.	Type of information	N=680	%
1	Academic Information	539	79.26471
2	Generalized Information	403	59.26471
3	Health Information	398	58.52941
4	Research Information	317	46.61765
5	Statistical Information	457	67.20588
6	Current Information	358	52.64706
7	Financial Information	272	40
8	Political Information	340	50
9	Information related to Govt. Programs / policy	362	53.23529
10	Environmental Information	127	18.67647

The informational needs of students and teachers are distinct, and both groups need a variety of sources. From among the 680 responses, Table-21 details the many forms of information sought after by students and teachers. There are 539 staff and students in need of academic resources, or 79.26% of the entire population. Nearly six-in-ten students and teachers (403) have a general information need, and nearly as many (398) have a health information need. Over half (340) of students and teachers want more access to political information, while 362 want more access to information on government programs and policies. There are still 272 teachers and students who need the most up-to-date data. Comparatively fewer pupils and teachers need access to financial data (272-40%) or environmental data (127-18.67%). Since most respondents are academics, it stands to reason that they would prefer academic knowledge over other types of information.

Table 4: Analyze how much time students and teachers spend using the following tools

Sl. No	The extent of availability of resources N=680	Very Great extent	Great extent	Some extent	Little extent	No extent	Total scores	Mean	Rank
1	Reference Books	270 39.71	148 21.76	129 18.97	92 13.53	41 6.03	2554	3.755882	1
2	Text Books	272 40.00	133 19.56	142 20.88	93 13.68	40 5.88	2544	3.741176	2
3	National journals	173 25.44	119 17.50	138 20.29	161 23.68	89 13.09	2166	3.185294	5
	International journals	72 10.59	98 14.41	218 32.06	150 22.06	142 20.88	1848	2.717647	10
4	Encyclopaedia set	40 5.88	118 17.35	232 34.12	132 19.41	158 23.24	1790	2.632353	11
5	Hand Book	52 7.65	71 10.44	142 20.88	188 27.65	227 33.38	1573	2.313235	14
6	Dictionary	91 13.38	113 16.62	201 29.56	129 18.97	146 21.47	1914	2.814706	9
7	Directories	39 5.74	89 13.09	173 25.44	208 30.59	171 25.15	1657	2.436765	12
8	Year Books	41 6.03	59 8.68	133 19.56	253 37.21	194 28.53	1540	2.264706	15
9	Gazettes	32 4.71	39 5.74	52 7.65	332 48.82	225 33.09	1361	2.001471	16
10	Back volumes of journals	20 2.94	40 5.88	62 9.12	225 33.09	333 48.97	1229	1.807353	17
11	Project reports	170 25.00	130 19.12	101 14.85	125 18.38	154 22.65	2077	3.054412	7
12	Old Question papers	185 27.21	142 20.88	101 14.85	142 20.88	110 16.18	2190	3.220588	4
13	Newspapers/ Magazines	163 23.97	135 19.85	141 20.74	111 16.32	130 19.12	2130	3.132353	6
14	VTU Consortium e-resources	210 30.88	183 26.91	112 16.47	93 13.68	82 12.06	2386	3.508824	3
15	Audio visual resources	80 11.76	143 21.03	208 30.59	133 19.56	116 17.06	1978	2.908824	8
16	Competitive Examination books	70 10.29	92 13.53	108 15.88	179 26.32	231 33.97	1631	2.398529	13

The research was conducted in part to ascertain how extensively engineering college undergrads and their professors make use of available informational resources. The materials utilized by the students and teachers in the study are listed in the table above, with responses ranging from "very often" to "never." When calculating a score, we first

multiply the frequency of each statement by its corresponding scale value, then we add up all the product values and divide by the size of the sample, and finally we order the results according to the mean value, as shown in the table below.

Table 5: Analysis of the relationship between students' and faculty members' familiarity with and usage of electronic resources in a sample of engineering schools.

Sl. No	e-resources N=680	Awareness D_1	Extent of use D_2	D=d1-d2	D^2
1	VTU Consortium e-resources	1	1	0	0
2	On –line databases	11	11	0	0
4	Electronics journals(Full text /Abstract)	16	15	1	1
5	e- books	9	7	2	4
6	OPAC	2	3	-1	1
7	e- thesis and dissertations/shodha/ Ganga/Gangorti	14	13	1	1
8	On –line reference books	10	10	0	0
9	e- news papers	12	12	0	0
10	Website web resources	15	14	1	1
11	INDEST consortia	4	2	2	4
12	Search engines	7	9	2	4
13	Institutional Repositories	17	16	1	1
14	IEEE databases	3	4	1	1
15	Scopus database	5	5	0	0
16	Web of science database	6	6	0	0
	Total			$\sum d_i^2$	18

$$r= 1- (\frac{\sum 6d^2}{n(n^2-1)}) \quad r=1-(\frac{6X18}{16(16^2-1)}) =.973$$

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Using a spearman coefficient correlation test, we can show that there is a very significant positive correlation (r=.973) between students' and faculty members' levels of familiarity with and usage of electronic information resources at engineering institutions. This shows that both students and faculty at engineering schools have similar levels of familiarity with and usage of digital libraries and archives.

Table 6: The Mean, Standard Deviation, and t-Test Results Between Male and Female Library Users of Engineering Colleges Studied With Regard To Their E-Resources Knowledge

Type of institution	Mean	SD	N	t-value	d.f	P-value	Significance
Male	56.16	11.82	430	-3.212	678	.001	S
Female	58.59	10.99	250				

The mean score of knowledge about electronic resources among male and female patrons in the libraries of the examined engineering schools is 56.16 and 58.59, with a corresponding standard deviation of 11.82 and 10.99. Since the p-value is less than 0.05, we reject the null hypothesis and adopt the alternative hypothesis, which states that male and female library patrons at engineering schools have significantly different scores on the Awareness of Electronic Resources scale (t=3.212, d.f=678). Statistical analysis shows that male and female library patrons at Engineering institutions have different levels of familiarity with the library's electronic resources. It may be argued that female engineering student library patrons have a higher degree of awareness regarding electronic resources than their male counterparts**.**

Table 7: Examining the differences in e-Resources knowledge across students in urban and rural engineering schools using mean, standard deviation, and t-test

Type of institution	Mean	SD	N	t-value	d.f	P-value	Significance
Urban	54.64	14.05	405	3.325	678	.001	S
Rural	51.39	14.83	275				

It has been shown that the mean awareness of electronic resources among urban and rural users of engineering college libraries is 51.39% and 54.64%, respectively, with a standard deviation of 14.05% and 14.83%. Since the p-value is less than 0.05, we reject the null hypothesis and accept the alternative hypothesis that there is a statistically significant difference between male and female users of the library of Engineering colleges with respect to level of Awareness of Electronic Resources scores (t=3.325, d.f=678). Users from urban areas had a higher degree of awareness of electronic resources than users from rural areas, according to a survey of students at engineering institutions in the Indian state of Jalgaon. In conclusion, it seems that engineering students in metropolitan areas have a higher degree of familiarity with electronic resources than their rural counterparts.

Table 8: Analysis of information-seeking behavior patterns among male and female library patrons at engineering universities, using mean, standard deviation, and t-test

Type of institution	Mean	SD	N	t-value	d.f	P-value	Significance
Male	46.16	8.82	430	-1.212	678	.211	S
Female	47.59	9.99	250				

The mean scores for men and women who utilize the library at engineering schools are 46.16 and 48.59, with a standard deviation of 8.82 and 9.99, respectively. Since the p-value is more than 5%, we reject the null hypothesis that there is no

difference between male and female library patrons at Engineering institutions in Jalgaon state in terms of Information seeking behavior pattern scores (t=1.212, d.f=678). Results showed no statistically significant difference in information-seeking behavior pattern scores between male and female users of the libraries at the studied engineering schools. Information-seeking behavior pattern scores are comparable amongst male and female engineering college library users, it has been shown.

Table 9: Mean, standard deviation, and t-test results for information-seeking behavior pattern scores from library patrons in urban and rural areas of Engineering institutions in Jalgaon state

Type of institution	Mean	SD	N	t-value	d.f	P-value	Signifi cance
Urban	44.64	11.05	405	2.325	678	.001	S
Rural	42.39	10.83	275				

Users from urban areas have a mean score of 44.64, while those from rural areas have a mean score of 42.39; the standard deviation for both groups is 11.05 and 10.83, respectively. Since the p-value is less than 0.05, we reject the null hypothesis and accept the alternative hypothesis that there is a statistically significant difference between urban and rural users of the libraryof Engineering colleges under study with respect to Information seeking behavior pattern scores (t=2.325, d.f=678). There is a statistically significant gap in the information-seeking behavior pattern scores of urban and rural library users at Engineering schools, according to this data. Users of engineering libraries in urban areas had higher information-seeking behavior pattern scores than their rural counterparts.

CONCLUSION

Studies of users' information-seeking behaviors are promising enough to be conducted periodically on a wide variety of audiences. The current research was conducted to learn more about how students and faculty at engineering institutions in Jalgaon look for information online. Users of the investigated engineering universities were asked to complete a survey about their information-seeking habits. Findings from this study indicate that the sampled students and educators have formed the practice of actively seeking knowledge for scholastic purposes (in the classroom, at the library, and online).

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