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Search and Use of Electronic Resources: A comparative study of University Students

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Abstract

The paper aims to analyze the use of electronic resources by the students pursuing various courses from the select universities of Jammu and Kashmir state, India. The prime objective is to compare the students on the basis of purpose of seeking information, their searching skills with respect to electronic sources and their perception regardingthe format in which they find more qualitative information. It further aims to explore the problems they face while accessing information.Descriptive method of research was employed to carry out the study. To examine the use of electronic sources, a total of 927 students using stratified random sampling were selected from four universities of Jammu & Kashmir(J&K). A well-drafted questionnaire was used as a data gathering tool and was personally distributed among all the students. Data was analyzed using SPSS software. Information is accessed in both the formatsby the university students among all the universities. Students mainly use simple search. However, advanced search is mainly adopted respondents from UOK and UOJ. Among the search tools, Search engines are used mostly and among search techniques.The study also reveals that students face a number of physical problems including Electricity disruption, low internet connectivity.

Keywords:*Information Seeking Behavior, Print sources, Information Technology, Electronic Resources, Information Literacy, University of Kashmir, Universities of Jammu & Kashmir.*

I.INTRODUCTION

Internet is significantly used for the effective and efficient retrieval of information and to fulfill the information needs of users. It is highly applicable in university setupsas these act as main hubs of researchactivity. It facilitates a plethora ofelectronic resourcesthat areeconomical more useful and easy to access. These resources can be accessed anytime and anywhere**[1].**Electronic resources have become an important part of the information needs of students. These can be good alternates for traditional resources if the internet connectivity is fast and adequate computer terminals are available to provide fast access to e-resources**[2].**Electronic resources have gained much popularity and are being used to a greater extent. These resources enable timely research, innovation in teaching as well as exploration and creation of new fields of knowledge. Theseresourcesare easy to use and help to make research work more qualitative.One can search and retrieve more relevant and qualitative information from electronic resources by the use of various search tools (like Search engines etc) and techniques(like BooleanSearchetc). Students in higher educational institution

access information for various purposes likeresearch work, to get updated with latest information, course assignments, general knowledge, etc. While browsing electronic resources, they may come across various barriers like In-adequate electronic resources, slow internet connectivity etc.

The paper is an attempt to examine the use of electronic sources, search techniques and the search types for accessing those electronic resources by the students pursuing various coursesin different faculties of select universities of J&K state. The study also highlights the barriers that students face while searching the electronic information sources.

II.REVIEW OF LITERATURE

Students in university setups access different information sources to satisfy various information needs related to a number of purposes including *Course completion, Research work, General awareness, writing assignments/research* etc. Thanuskodi while studying *the Information needs and seeking behavior of the Tamil Nadu Dr. Ambedkar Law University Faculty Members* found that most of the respondents (76.66%) access information for writing papers while as 51.66% use them these for research work**[3]**. **Moly (2014)** found in his study regarding *Information Need and Information Seeking Behavior of Information Science Students in Haramaya University, Ethiopia* that the main purpose of students to visit library is writing assignments/research and study**[4].Ganaie and Khazer (2015)** while studying the Information Seeking Behavior among PG Students of *University of Kashmir* conclude that students are inclined towards the use of print sources of information rather than electronic ones**[5]. Catalano (2013)** finds in his study about the information seeking behavior among the graduate students in *Hofstr University, Hempstead, New York, USA* that they prefer to use electronic sources while seeking information related to their research**[6].Sheeja (2010)** divulges that *Social Science and Science* researchers prefer to access electronic resources like e-journals and e-databases more than the print forms of these resources**[7].**However, **Nicholas, Huntington, Jamali, Rowlands and Fieldhouse (2009)** reveal that generally students in higher academic institutions rely on *simple searching*, and get more trained in their searching skills as they proceed towards higher degrees of learning**[3].Navalur, Balasubramani and Kumar (2012)** reveal that *key word search, field search, phrase search, search with Boolean operators, wild cards and truncations are commonly known search strategies* which are used by most of the research scholars while searching the web**[8].**According to **Baro, Endouware and Ubogu (2011)** the problems that students face while searching information in *Niger Delta University* include lack of time, inadequate information literacy, and poor searching skills **[9].Markwei (2013)** divulges that Information seeking behavior of students in *University of British Columbia* and finds that students face a number of barriers while seeking information including high cost of qualitative information sources, lack of time and information literacy, lack of availability of precise information, educational infrastructure, lack of confidence in searching information etc**[10].**

III.OBJECTIVES

The study comprises of the following objectives:

1. To know the purpose of searching information

2. To explore the preference of formats of information sources
3. To analyse the search tools and search techniques used to access the electronic resources.
4. To identify the barriers faced while accessing information

Scope

The scope of the study is limited to Research Scholars belonging to following four select universities of Jammu & Kashmir state:

1. University of Kashmir
2. University of Jammu
3. Islamic University of Science and Technology
4. Mata Vaishno Devi University

IV.METHODOLOGY

To explore the university wise use of electronic resources and impact of technology, a total of 927post graduate students were selected from four universities of Jammu & Kashmir using stratified random sampling technique. Sample was distributed in accordance to the population ratio of each university under study**(Table1).** A well-drafted questionnaire was used as a data gathering tool and was personally distributed among the scholars.Data was analysed and statistical tests were carried out using SPSS software.

Table 1: University wise distribution of sample

Sample allocation of Students				
University	**Science**	**Social Science**	**Arts**	**Total**
University of Kashmir	109	139	94	342
University of Jammu	140	109	76	325
Sri Mata Vaishno Devi University	63	47	19	129
Islamic University of Science and Technology	51	58	22	131
Total	**363**	**353**	**211**	**927**

V.DATA ANALYSIS AND DISCUSSION

The section comprises of the analysis and discussion of data collected related to the study. Comparative analysis of the user responses collected across four universities is carried and is presented as follows:

1. University wise Comparison for Purpose of Seeking Information

There is a considerable difference among the respondents from the four universities regarding the use of information sources for research purpose. Majority of respondents (51.9%) who access information for **research** purpose are from SMVDU. It is followed by 38.9% of respondents from UOK and the least (22.9%) are from IUST. It indicates that most prominent purpose for scholars from SMVDU and UOK is to meet out the information needs related to their research activities as compared to that from IUST and UOJ.

Again, a great variation is observed regarding rest of the purposes for which respondents seek information in the select universities of J&K. It is evident from the fact that majority of the respondents whose purpose is **course completion (**88.4%), **preparing the assignments (**39.5%), &**entertainment (**33.3%) are from SMVDU and the least proportion of respondents who seek information for **course completion** (69.5%) is from IUST, for **preparing assignments** (27.7%) is from UOJ and for **entertainment** (13.0%) is from IUST. This infers that respondents from **SMVDU** take a leadover the respondents in other universities in seeking information for these purposes while asthose from **IUST** show less interests in these purposes.

Moreover, it is depicted that there is slight variation among the respondents (5-6%) in the universities under study whose purpose of searching information is to obtain **general awareness.** This is evident from thefact that **majority** of them **(**43.4%) are fromUOJ and least (38.0%) are from SMVDU who access information for general awareness purpose. However, there is much variation among the respondents 'to **keep them-selves updated with latest Information'**, as majority of respondents (31.7%) are from UOJ and only 13.7% from IUST have same purpose **(Table 2).**

Statistical observation ($p<0.05$) substantiates that 'Purpose of accessing information' is significantly related to 'University wise distribution of respondents' which indicates that the purpose of seeking information among the users vary significantly from university to university.

Table 2:Purpose of seeking Information (N=927)

S. No	Purpose	University				Total Users (N=927)
		SMVDU (N=129)	UOK (N=342)	UOJ (N=325)	IUST (N=131)	
1	Research Work	67** (51.9)*	133 (38.9)	123 (37.8)	30 (22.9)	353 (38.1)
2	Course Completion	114 (88.4)	259 (75.7)	256 (78.8)	91 (69.5)	720 (77.7)
3	Prepare the assignments	51 (39.5)	122 (35.7)	90 (27.7)	46 (35.1)	309 (33.3)
4	Entertainment	43 (33.3)	63 (18.4)	52 (16.0)	17 (13.0)	175 (18.9)

5	**General Awareness**	49 (38.0)	136 (39.8)	141 (43.4)	55 (42.0)	381 (41.1)
6	**To keep updated with latest Information**	37 (28.7)	104 (30.4)	103 (31.7)	18 (13.7)	262 (28.3)
$\chi 2$ =44.565; df=21 ; P-value<0.05						

***Figures within parentheses indicate percentage*

***Total no. of respondents exceeds the actual no. since multiple options were allowed*

2. Comparison of Universities on the Basis of Format of Information Sources.

It is clear that the preference of respondents in connection with **Print** format of information sources is same in UOK (26.3%) and IUST (26.7%); whereas the proportion is slightly lower in case of UOJ (21.8%) and highest in SMVDU (32.6%). A difference of ±4-7% than the average drawn from all the four universities (25.7%) indicates that the overall difference across these universities w.r.t. preference of print format of information sources is quite negligible.

The data regarding the preference of **electronic** format of information sources reveal that there is lower use of this format among the respondents from all the universities as compared to print format. The use of **electronic format** is seen to be almost equal in SMVDU (10.9%) and IUST (11.5%); whereas, its use in other two universities i.e. UOJ (16.3%) and UOK (14.9%) is slightly higher. Moreover, it is obvious from the Table that so far as the preference to access information in **both print and electronic formats** is concernedit is quite same in UOJ (61.8%) and IUST (61.8%), with equal proportion of respondents; and slightly different in UOK (58.8%) and SMVDU (56.6%), with lower proportion from other two universities **(Table 3).** *Statistically, it is evident that the use of different formats of information sources does not have significant association with university as variable (p>0.05). It means that the use of different formats does not vary among the users from university to university.*

Table 3: Comparison of preferred format

S. No	**Preferred Format**	**Universities**				**Total N=927**
		SMVDU (N=129)	**UOK (N=342)**	**UOJ (N=325)**	**IUST N=131**	
1	**Print**	42 (32.6)*	90 (26.3)	71 (21.8)	35 (26.7)	238 (25.7)
2	**Electronic**	14 (10.9)	51 (14.9)	53 (16.3)	15 (11.5)	133 (14.3)
3	**Both**	73 (56.6)	201 (58.8)	201 (61.8)	81 (61.8)	556 (60.0)

$\chi 2$ =7.751; df=6 ; P-value>0.05

*****Figures within parentheses indicate percentage*

3. Comparison of Universities on the Basis of Quality of Information in Different Formats.

The opinion that information is more **qualitative** in **print** format of informationsources rather than electronic sources is almost same across all the four universities i.e. IUST (45.8%), UOJ (42.2%), SMVDU (41.9%) and UOK (38.9%), with a marginal difference of ±3% from the average proportion (41.4%).

Moreover, there is a lower proportion of respondents from all the universities who are of the opinion that the quality of information in **electronic format** of information sources is better than that in print format**.** This fact is authorized by only 26.0% of respondents from UOK and the proportion goes much down in case of IUST (14.5%) whereas equal fraction of them are from SMVDU (16.3%) and UOJ (16.6%) who are of same opinion.

It is further highlighted that a good percentage of respondents (35-42%) from all the universities are of the opinion that information is qualitative in **both print as well as electronic formats** of information sources. It indicates that there is slight difference of respondents (±3%-7%) among the select universities in this regard with majority of the respondents from SMVDU (41.9%) and UOJ (41.2%) and lowest from UOK (35.1%)**(Table 4).**

It is statistically observed that the 'quality of information in different formats' have considerable association with 'University as variable' (p<0.01). This indicates that the perception of respondents regarding the quality of information available in different formats vary from university to university.

Table 4:Formats w.r.t. quality of information

Qualitative information		Universities				Total (N=927)
		SMVDU (N=129)	UOK (N=342)	UOJ (N=325)	IUST (N=131)	
Format	Print	54 (41.9)*	133 (38.9)	137 (42.2)	60 (45.8)	384 (41.4)
	Electronic	21 (16.3)	89 (26.0)	54 (16.6)	19 (14.5)	183 (19.7)
	Both	54 (41.9)	120 (35.1)	134 (41.2)	52 (39.7)	360 (38.8)
$\chi 2$ =14.280; df=6 ; P-value<0.01						

*****Figures within parentheses indicate percentage*

4. Comparison of Universities on the Basis of use of Search Types.

The proportion of respondents who prefer to use **simple search** is same in UOJ (59.7%) and UOK (59.6%), but slightly lower than IUST (64.9%) which in turn is lower than IUST (69.8%). The overall view of the user population indicates that there is a slight difference (5%-10%) in preference of users w.r.t. the search types they

adopt. This is similar to the findings of **Nicholas,Huntington, Jamali, Rowlands**and **Fieldhouse (2009)** who also found that students in universities prefer simple search over advanced search to access information**[3].** While as **advanced search** is mostly preferred by an equal proportion of respondents from UOK (40.4%) and UOJ (40.3%), but slightly higher than the respondents from IUST (35.1%) which in turn is higher than SMVDU (30.2%). It indicates that there is quite negligible difference in case of three universities for of this option (2% in user proportion from the average i.e. 38.2%); whereas, the users from SMVDU (8% difference in user proportion) are slightly variant in this regard (**Table 5)**. *However, statistical analysis highlights the fact that 'search types' has a significant association with 'university as a variable' (p<0.01), which indicates that use of search types among the respondents vary from university to university.*

Table 5:Use of Search Types

S. No	Search Type	Universities				Total (N=927)
		SMVDU (N=129)	UOK (N=342)	UOJ (N=325)	IUST (N=131)	
1	**Simple Search**	90 (69.8)*	204 (59.6)	194 (59.7)	85 (64.9)	573 (61.8)
2	**Advanced Search**	39 (30.2)	138 (40.4)	131 (40.3)	46 (35.1)	354 (38.2)
$\chi 2$ =5.279; df=3 ; P-value<0.01						

***Figures within parentheses indicate percentage*

5. Comparison of Universities on the Basis of Use of Search Tools.

Search engines likeGoogle etc. are most widely used search tools by the respondents from all the universities which is in relation to the study of **(Nadzir, 2015)** who also found that students in universities use Google for searching their desired information**[11].** Table 4.45 reveals thatthe proportion of respondents who prefer to use **search engines** for searching the information they need is almost equal in SMVDU (69.8%), UOJ (68.9%) and UOK (65.2%) with a slight difference of ±3% from the average (65.67%) and 7% in case of IUST (58.8%).

Meta search engines are being used by lower portion of respondents from all the select universities. Majority of respondents accessing information through these search tools are from IUST (16.8%) and least are from UOK (8.2%). A good proportion of respondents from all the select universities access information using **online databases**. It is evident from majority of respondents from IUST (45.0%) followed by UOK (40.9%) and least are from **SMVDU** (27.9%).

University websiteis being again used by lower portion of respondents from all the select universities of J&K. It is depicted that respondents from UOJ (25.2%) and SMVDU (24.8%) take a lead in the use of university website over the respondents from UOK (19.3%) and IUST (19.1%).

Portals are the least accessed search tools by the respondents from all the universities with a highest percentage of respondents from SMVDU (11.6%) and least from UOK (6.4%)(**Table 6)**.

Statistical observation depicts that the 'use of search tools' do not have significant association with 'Universities as variable' (p>0.05).

Table 6: Use of Search tools

S.No	Search tools	University			
		SMVDU N=129	**UOK N=342**	**UOJ N=325**	**IUST N=131**
1	**Search Engines**	90** (69.8)*	223 (65.2)	224 (68.9)	77 (58.8)
2	**Meta Search Engines**	17 (13.2)	28 (8.2)	31 (9.5)	22 (16.8)
3	**Online Databases**	36 (27.9)	140 (40.9)	104 (32.0)	59 (45.0)
4	**University Website**	32 (24.8)	66 (19.3)	82 (25.2)	25 (19.1)
5	**Portals**	15 (11.6)	22 (6.4)	28 (8.6)	9 (6.9)
$\chi 2$ =32.403; df=15 ; P-value>0.05					

***Figures within parentheses indicate percentage*

***Total no. of respondents exceeds the actual no. since multiple options were allowed*

6. Comparison of Universities on the Basis of Use of Search Techniques

Among the search techniques, **Keyword search** is equally popular among respondents from UOK (71.6%) and UOJ (71.1%), followed closely by SMVDU (66.7%); but the percentage of its proponents is quite different in IUST (39.7%). Thus, it is understood that overall there is not much difference in use of keyword searching among users of select universities.

It is further observed that there is very meager use of **Boolean search** techniqueamong the respondents in the universities except those from IUST (38.9%). This is endorsed by the fact that very less proportion of respondents from UOJ (7.1%), SMVDU (5.4%) and UOK (5.0%) uses this search technique. Moreover, the use of Field **search** is to a good extent by the respondents from all the universities under the scope of the study. These are used by majority of respondents from UOK (43.6%) followed by them from IUST (35.1%) and least from SMVDU (27.9%). It is good to notice that **Range search** is also being used by a good proportion of respondents from all the universities with majority of respondents from IUST (28.2%) followed by them from UOJ 23.4% and least from SMVDU (17.1%).

Relevance search are being used by meager proportion of respondents from all the select universities of J&K. It is evident that maximum use of this technique is by the respondents from UOK and that too by only 9.4% of respondents followed by them from SMVDU (7.8%)(**Table 7)**.

It is statistically revealed that the 'use of search techniques' has considerable association with 'University as variable' as p<0.05 revealing that the use of search techniques among the respondents varies from university to university.

Table 7:Use of Search Techniques

S. No	Search Techniques	University			
		SMVDU (N=129)	**UOK (N=342)**	**UOJ (N=325)**	**IUST (N=131)**
1	**Keyword Search**	86** (66.7)*	245 (71.6)	231 (71.1)	52 (39.7)
2	**Boolean Search**	7 (5.4)	17 (5.0)	23 (7.1)	51 (38.9)
3	**Field Search**	36 (27.9)	149 (43.6)	108 (33.2)	46 (35.1)
4	**Range Search**	22 (17.1)	70 (20.5)	76 (23.4)	37 (28.2)
5	**Relevance Search**	10 (7.8)	32 (9.4)	25 (7.7)	8 (6.1)
$\chi 2$ =218.69; df=15; P <0.05					

***Figures within parentheses indicate percentage*

***Total no. of respondents exceeds the actual no. since multiple options were allowed*

7. Comparison of Universities on the Basis of Barriers Faced by Respondents while browsing information

There are many concerns about the **electricity disruption** while browsing electronic resources from all the select universities of J&K. This is similar to the findings of **Norbert** and**Lwoga (2012)** who found that students in Tanzania University face electricity disruption while accessing their desired information**[12].** This fact is depicted by majority of respondents from IUST (49.6%) followed by those from UOK (44.2%) and SMVDU (43.4%) and least from UOJ (40.6%). It is also revealed that a good number of respondents feel that there are **inadequate e-resources** available in the universities as revealed by majority of the respondents from SMDVU (33.3%) followed by almost equal proportion from UOK (27.5%), UOJ (27.1%) and IUST (26%). Moreover, respondents in the select universities feel that they are being given **less internet access time** as revealed by majority of the them from SMVDU (51.2%) followed by respondents from UOJ (42.2%) and UOK (38.3%) and least from IUST (42.2%). Although, all the respondents access internet to browse desired information but most

of them are of the opinion that there is **slow internet connectivity** in their respective universities as revealed by the respondents from SMVDU (67.4%), UOJ (62.8%), UOK (59.9%) and IUST (58.8%). Moreover, Table reveals that some of the respondents from all the universities lack proper **searching skills** to find relevantinformation. This fact is endorsed by the respondents from SMVDU (16.3%) followed by equal proportion of respondents from UOK (7.9%) and IUST (7.6%) but slightly higher proportion from UOJ (12.6%)(**Table 8)**.*It is statistically divulged that the 'Barriers in information access' does not have substantial association with 'University wise distribution of respondents' as (p>0.05).*

Table 8: Barriers faced while browsing information (N=927)

S. No	Barriers to information access	University			
		SMVDU (N=129)	UOK (N=342)	UOJ (N=325)	IUST (N=131)
1	**Electricity Disruption**	56** (43.4)*	151 (44.2)	132 (40.6)	65 (49.6)
2	**Inadequate e –resources**	43 (33.3)	94 (27.5)	88 (27.1)	34 (26.0)
3	**Limited Internet Access Time**	66 (51.2)	131 (38.3)	137 (42.2)	32 (24.4)
4	**Slow internet Connectivity**	87 (67.4)	205 (59.9)	204 (62.8)	77 (58.8)
6	**Poor information searching skills**	21 (16.3)	27 (7.9)	39 (12.0)	10 (7.6)
$\chi 2$ =12.881; df=15 ; P>0.05					

***Figures within parentheses indicate percentage*

***Total no. of respondents exceeds the actual no. since multiple options were allowed*

Findings

The findings of the study are as follows:

1. So far as the most popular purpose behind seeking information in the universities under the scope of the present study is concerned, SMVDU leads over other universities as majority of the respondents whose purpose of seeking information is Research Work and course completion is from this university. Findings regarding the purpose of seeking information for General Awareness indicate that the majority of respondents are from UOJ and least from SMVDU. Two reasons viz, 'Discussion' and 'Personal interest for reading' prove to be the least purposes among respondents for seeking information.

2. Regarding the university wise of use of formats of information sources, respondents from all the universities prefer both the formats almost equally with an inclination towards using print format of information

sources. The print sources of information are used by majority of respondents from SMVDU and least from UOJ.

3. Regarding the university wise use of the search technique, findings reveal that Keyword searching is mostly preferred by the respondents from UOK and UOJ and least from IUST. Boolean search is preferred mostly by the respondents from IUST but this technique is used by very low proportion of respondents from other three universities viz UOK, UOJ and IUST. The use of field search is preferred by a good proportion of respondents from all the universities with majority from UOK and least from SMVDU. Range search and Relevance search is used by comparatively lesser proportion of respondents from each university. It is a matter of concern as a number of respondents from SMVDU and from IUST are not aware about the search techniques. However, it is interesting to know that cent percent of respondents from UOJ and UOK are aware of these search techniques.

4. There is trend of using simple search among the respondents from all the universities. Findings reveal that respondents from SMVDU take a lead over other universities in the use of *simple search* but UOK lags behind in this regard. While as the use of *advanced search* is mostly witnessed among the respondents from UOK and UOJ and least among the respondents from SMVDU.

5. Regarding the university wise use of search tools, findings reveal that among all the search tools, search engines are being used by almost equal proportion of respondents from all the universities under study with majority from SMVDU followed by respondents from UOJ and least from UOJ. It is also found that online databases are also used to a good extent in the universities with majority of respondents from IUST and least from SMVDU. Further, findings reveal that some of the respondents (≤8%) from each university are not yet aware about these search tools.

6. Findings also reveal that majority of the respondents from SMVDU, UOK, UOJ and IUST feel that information is more *qualitative* in print format of information sources than in electronic format in their concerned campuses. However, a good proportion of respondents from these universities feel that qualitative information is available in both print as well as electronic format of information sources.

7. Regarding the barriers faced by respondents in different universities, it is comprehended that respondents from SMVDU and UOJ mostly face slow internet connectivity and limited internet access time provided by the authorities while as respondents from UOK and IUST mostly face slow internet connectivity and electricity disruption while browsing desired information.

VI.CONCLUSION AND SUGGESTIONS

The students pursuing various courses in the select universities of J&K mainlyaccess information for Course Completion and Research work.They prefer to access information in Print format rather than electronic so it is the responsibility of library staff to attract the attention of users towards both print as well as electronic sources by organizing various awareness and orientation programs.Further, Library administration need to seek out the reasons related to the low use of electronic sources and take appropriate measures to remove all the barriers or hindrances that users face while accessing these resources. The use of search techniques and search tools to find more qualitative and precise information from electronic resources is found to be low so the library

administration of select universities should make users aware of using these techniques and tools so as to find needed information more easily and systematically. It is also concluded that students come across a number of barriers while accessing information sources so in this regard it is suggested that the university administration in the select universities of J&K should enhance internet connectivity so that users can access and download information without any delay. Electricity infrastructure should be repaired so that disruptions could be minimized to ensure round the clock availability of electricity and arrangements should be made to provide backup facility for this purpose within the universities.

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