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Modeling Information Seeking Behavior of Scholarly Community

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Purpose: A number of models have been designed from time to time globally by various authors and researchers relevant to information needs and seeking behavior of users in various academic institutions. The paper explores, introduces and discusses various information seeking models and explains various elements of each model with an aim to design a model showing the information seeking behavior of Research Scholars in Universities of Kashmir.

Design/methodology/approach: Various online resources like database, research articles and other web tools were accessed to retrieve relevant information related to the select models. To explore the information seeking behavior of Research Scholars, a total of 200 scholars were selected from University of Kashmir using stratified random sampling. Besides, a well-designed questionnaire was used as a data gathering tool and was personally distributed among all the scholars pursuing research degree in university of Kashmir to examine their information seeking behavior.

Findings: The main findings of the study are presented in the form of a model which reveals that the information seeking behavior of scholars is greatly influenced by the introduction of Information Technology in the university libraries. There is a transformation from the traditional way of seeking information by scholars towards the tech savvy mode. Some of the findings of the study includes that Research Scholars mainly use Laptops as compared to desktops for seeking their desired information. Internet and Newspapers are mostly to get updated with the latest information related to their research. The study also reveals that research scholars face a number of barriers while accessing the needed information from the electronic resources

including slow internet connectivity, electricity disruption, limited internet access time provided by authorities.

Originality/value: The paper shows the practical value of a new model of information behavior which was developed using insights from earlier models in the field of Library & Information Science. Such research paves new horizons in understanding the information needs and seeking behavior of researchers at University level.

Keywords: Information Seeking Behavior, Information Seeking Models, Information Literacy, University of Kashmir, Universities of Jammu & Kashmir.

Paper type: Research Paper

Introduction

Information Seeking Behavior of students in higher academic institutions is an exhaustive and complex process. The theoretical representation of such process is very difficult to comprehend, thus the graphical or pictorial representation will make things easier to understand and the same principle forms the base of Information Seeking Models. *A model may be defined as a structure for thinking about a perceived problem and may evolve into a statement of the relationships among theoretical propositions.* Information seeking models diagrammatically represent the complex tasks of information seeking process. These help in better understanding of demographics, tasks, activities, available services, infrastructure of universities and Information Seeking Behavior of users thereby help administrators and higher authorities to take *right decisions, offer best services, implement tech savvy infrastructure and satisfy the information needs of users* especially the students and scholars in more systematic and sophisticated way. Most Information Seeking Behavior models are generally the statements, often in the form of diagrams that attempt to explicate an information-seeking activity, the causes and consequences of that activity, or the relations among stages in information Seeking Behavior. Hardly ever do such models progress to the phase of specifying relationships among theoretical propositions rather they are at a pre-theoretical phase, but may propose relationships that might be productive to scrutinize or to test **(Wilson, 1999).** Information seeking models aim to describe the process that a user follows to satisfy his information need and while fulfilling that need, he approaches towards formal and informal information sources or available services which finally results in success or failure to retrieve desired information. Some models also

highlight major as well as minor factors that may directly or indirectly influence the Information Seeking Behavior of users.

Brief profile of University of Kashmir

The University of Jammu and Kashmir (UOK) was founded in the year 1948. In the year 1969 it was bifurcated into two full-fledged Universities: University of Kashmir at Srinagar and University of Jammu at Jammu. The University of Kashmir is situated at Hazratbal in Srinagar. Over the Years University of Kashmir has expanded substantially. It has established Satellite Campuses at Anantnag (South Campus) and Baramulla (North Campus) and three more Satellite Campuses at Kupwara, Kargil and Leh are being established to make higher education more accessible to people living in remote areas of Kashmir valley. The University is committed to provide an intellectually stimulating environment for productive learning to enhance the educational, economic, scientific, business and cultural environment of the region. The University offers programmes in all the major faculties; Arts, Business & Management Studies, Education, Law, Applied Sciences & Technology, Biological Sciences, Physical & Material Sciences, Social Sciences, Medicine, Dentistry, Engineering, Oriental Learning and Music & Fine Arts. It has been constantly introducing innovative/ new programmes to cater to the needs and demands of the students and the society. Over the years, the University has marked towards excellence in its programmes and activities. It has been re-accredited as Grade-A University by the National Assessment & Accreditation Council (NAAC) of India in the year 2011. This is recognition and reflection of the high standard of quality in teaching and research at the University of Kashmir.

Source website: *http://www.kashmiruniversity.net/AboutUoK.aspx*

Review of Literature

Robson and Robinson (2015), "*information seeking behavior is a highly subjective process, one in which students progress with previous knowledge, strongly held opinions and differing levels of psychological development.*" However, **Pohjanen, Anna** and **Kortelainen (2016)** are of the view that information seeking behavior is the general way through which people deal with information. User seek information to satisfy information needs related to various purposes including *General awareness, course completion, Research work, and to keep themselves*

updated with latest developments, writing assignments/research and study etc. **Markwei (2013)** conducted a study on 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. **Al-ansari (2006)** observed that the major problems that researchers face in *Kuwait University* includes slow speed of internet, lack of time and lack of off campus accessibility of information. **Sahu, Patra and Mahapatra (2013)** finds in their study on 'use of e-resource by the research scholar of *Utkal University and Sambalpur University, Odisha* a comparative study' that use of e-resource on *weekly, monthly and occasionally basis* is very meagre. **Das and Maharana (2013)** while analyzing the seeking behavior of *research scholars* of *Berhampur University* revealed that majority of research scholars use e-resources on *daily basis* followed by *once in a week*. Only some of them use these on *fortnightly* and *rarely basis*. He concludes by the statement that majority of scholars use e-resources daily as compared to other timings. Moreover, **Devendra (2010)** observed that majority of the users use internet on *daily basis* at a *University of Agriculture and Technology in New Delhi*. While talking of time spent each day in library, there is again great variation in the time spent by the scholars and students in different universities world-wide. According to **Ernest, Level and Culbertson (2005),** students prefer to use a wide range of information sources while seeking information and they become aware about these sources by consulting friends, family, and relatives. **Moly (2014)** found in his study regarding *Information Need and Information Seeking Behavior of Information Science Students in Haramaya University, Ethiopia* that students use sources like *books, journals, internet* etc to meet their information needs. **Dubicki (2010)** reveals that books are rarely used by business students at *Monmouth University* while as the *internet and library databases* are the primary tools used for research. **Nadzir (2015)** is of the opinion that students use *Google search engine* most frequently while searching desired information.
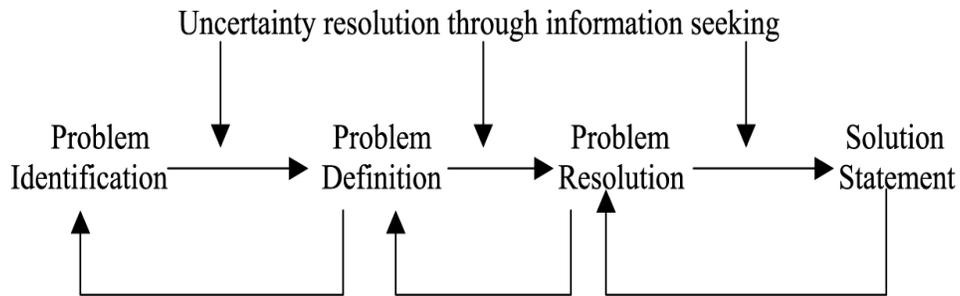
Information Seeking Models

A number of models have been proposed by the authors and researchers globally related to the information seeking behavior of students pursuing various courses in different universities. Some of the world famous information seeking models are discussed as**:**

i. Wilson's Model, (1999)

Wilson proposed an Information seeking model in1999 (Fig.1) which stresses on the intricacies of context of information seeking process. This model of Wilson is commonly known as the Macro-model. This model comprises of three important aspects viz:

➢ Why information seeking is more likely to occur in response to some needs more than others.

➢ Why some information sources are more used by the users than others.

➢ Why user's opinions of their own competence influences their success in meeting an information goal.

According to Wilson, as feedback of user is necessary aspect of overall information seeking process so in his model, he stresses on information process and invokes a feedback cycle in which he highlights *information seeking* as **iterative** at many steps rather than successive **(Wilson, 1999).**

Uncertainty resolution through information seeking

| Problem Identification | Problem Definition | Problem Resolution | Solution Statement |

Source: Wilson (1999 p. 266)

Fig. 1: Wilson's Model

Carol Kuhlthau's Model (1991)

Carol Kuhlthau propounded an Information Search Model (ISM) in 1991 (Fig.2) and is based on Kelly's Theory who believes that learning is a process of testing constructs. According to Kahlthau, reduction of ambiguity and uncertainty is the basic motivator of research. She divided information seeking process into different stages. She relates each of these stages with the emotional state of researcher. For example, she relates *Anxiety* with the recognition of uncertainty at the first stage i.e. **Initiation.** The other five stages and related emotional states (listed in parenthesis) are: **Selection** *(optimism),* **Exploration** *(confusion/frustration/doubt),* **Formulation** *(clarity),* **Collection** *(confidence)* and **Presentation** *(relief/satisfaction or disappointment)* **(Kuhlthau, 1991).**

Model of the Information Search Process

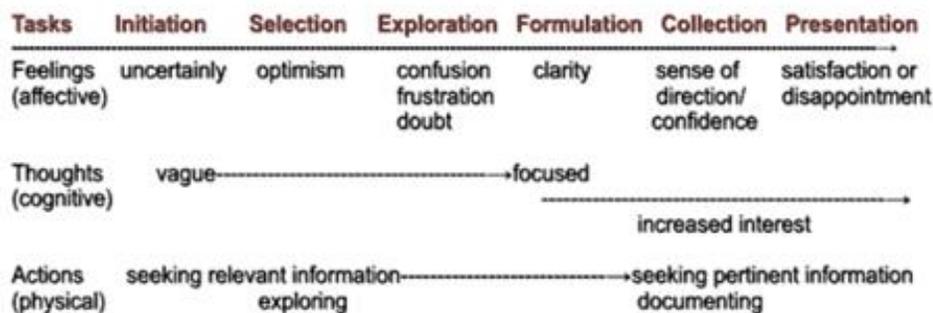| Tasks	Initiation	Selection	Exploration	Formulation	Collection	Presentation
Feelings (affective)	uncertainly	optimism	confusion frustration doubt	clarity	sense of direction/ confidence	satisfaction or disappointment
Thoughts (cognitive)	vague-----------------------------→focused					
				increased interest		
Actions (physical)	seeking relevant information------------------→seeking pertinent information					
	exploring			documenting		

Fig.2: Kuhlthau's model of the information searching process **(Kuhlthau, 1991).**
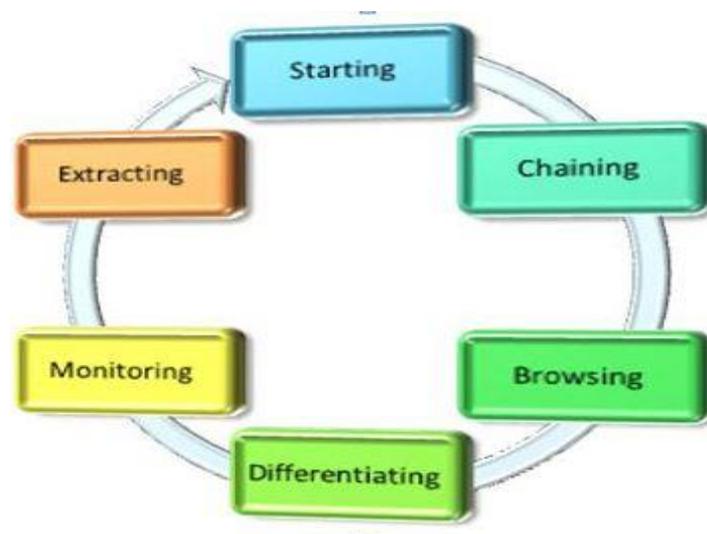
Kuhlthau '*Six stages'* are discussed below:

i. **Initiation:** This is the first stage of the process; expressed by feelings of uncertainty and more general thoughts with a need to be aware of or connect new to existing knowledge.

ii. **Selection**: In this stage, selection of a general topic with some common feelings of hopefulness takes place in order to identify most significant areas of the topic.

iii. **Exploration**: It is the third step of the process in which scrutinizing to extend personal perception and decrease the feelings of doubt and confusion about the topic takes place.

iv. **Formulation**: Here the researcher focuses on the process by means of encountered information accompanied by feelings of increase in confidence.

v. **Collection**: In the fifth stage, the researcher interacts smoothly with the information system with confidence as the topic is analyzed by selecting and evaluating information.

vi. **Presentation/Closure**: It is the final stage of the process which ends the process with a sense of confidence or failure depending on how useful are the findings **(Kuhlthau, 1991).**

Ellis' Model

        Ellis propounded a model on the basis of studies related to the Information Seeking Behavior of social scientists, research scholars and research scientists. His model (Fig. 3) also comprises of six categories of information seeking activities viz:

i. *Starting*
ii. *Chaining*
iii. *Browsing*
iv. *Differentiating*
v. *Monitoring*
vi. *Extracting.*

Fig.3: Ellis Model

i. **Starting**

It is the first step and it consists of those activities that user carries out at the beginning of searching needed information. Here, the user selects the sources of information that are relevant to his information needs. He may be familiar with the identified sources that have been used before or unfamiliar about these depending upon his experience and

knowledge. These sources also help him in finding more relevant sources by means of pointing to, suggest, or recommended additional sources or references.

ii. **Chaining**:

It is the second step of information search which begins after starting stage. Chaining can be either backward or forward. Backward chaining is generally carried out by researchers and scientists. Here, references from an initial source are followed. While as, forward chaining identifies and follows up on other sources that refer to an initial source or document. Although it can be an effective way of broadening a search, forward chaining is much less commonly used **(Al-Muomen, Morris & Maynard, 2011)**

iii. **Browsing**

In this step, the user starts browsing his desired information by looking tables of contents, lists of titles, subject headings, names of organizations or persons, abstracts, conclusions and summaries etc. Here, the user browses information relevant to his needs. He uses formal as well as informal sources.

iv. **Differentiating**

In the fourth step, user filters and scans the collected information by noticing the differences between the nature and quality of information offered by various sources. Experience and previous knowledge plays a significant role in this process.

v. **Monitoring**

This step deals with the activity of keeping oneself abreast with the latest developments in his specific field of study by regularly following particular sources of information. Here, the user keeps track on the Core sources which may furnish latest and relevant information to his needs. Core sources may include professional or researcher groups, experts, authentic publications etc.

vi. **Extracting**

It is the final step of Ellis Model in which the user systematically extracts the desired information from the relevant sources. The user extracts information either directly from the sources or indirectly by searching through online indexes, databases, bibliographies etc **(Choo, Detlor & Turnbull, 1999).**
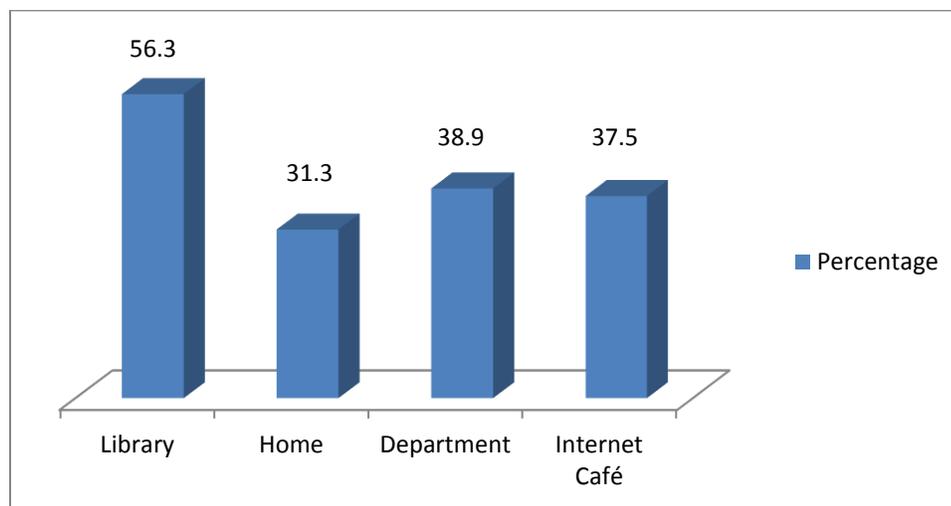
Data analysis and interpretation

Data collected by means of a questionnaire from 200 Scholars of University of Kashmir was analyzed. A view of some of the parameters that were selected for knowing the information seeking behavior of researchers in the university of Kashmir is given below:

Information Access Points

It is evident from the figure 4 that most of the scholars in university of Kashmir access information from Library (56.3%) followed by those who access from Department (38.9%). Home (31.3%) is preferred by least proportion of them as their information access point and is a matter of concern.

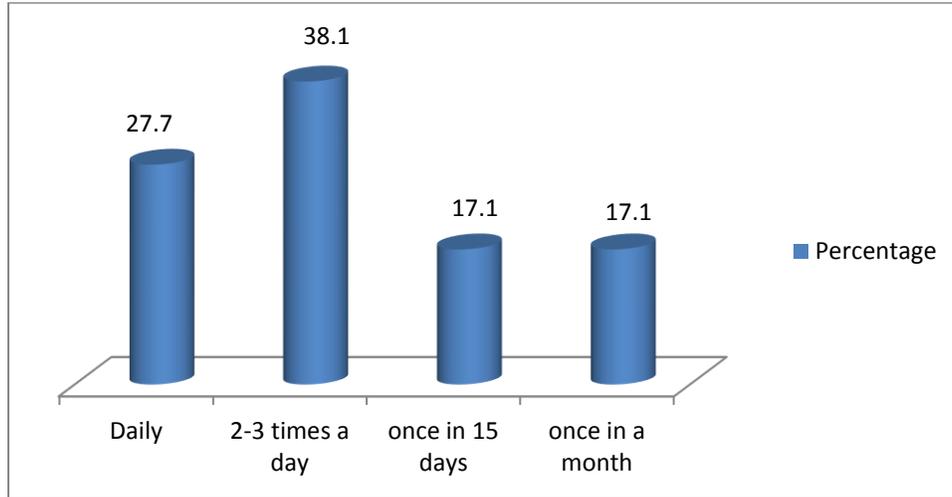**Figure 4**

Status wise Information access point

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

Visits to Library

It is indicated from Figure 5 that Research Scholars have good variation in the frequency of visits to the concerned libraries in the select university libraries in J&K. It is observed that majority of the **Research Scholars** (38.1%) visit library **2-3 times a week.** It is also observed that a good proportion of scholars (27.7%) visit library on daily basis. However, a meager proportion of them (17.1%) visit library either once in 15 days or once in a month.
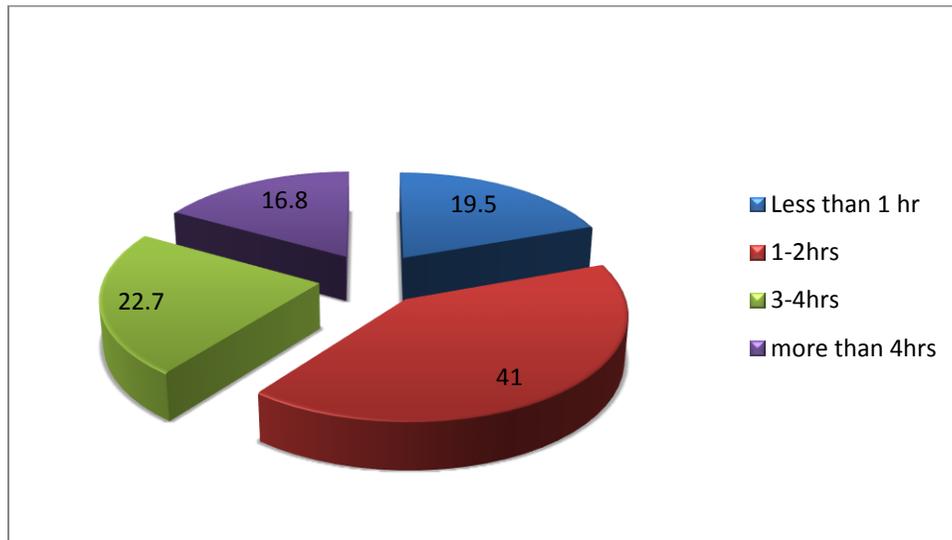
Figure 5

Frequency of visits to Library

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

Time Spent Each Day for Browsing Information

Study reveals that there is low trend of spending good time in library among the scholars of university of Kashmir. Data reveals that 41% of them spend 1-2 hrs a day in library followed by 22.7% who spend 3-4 hrs while as only 16.8% spend more than 4 hrs in library to access needed information.
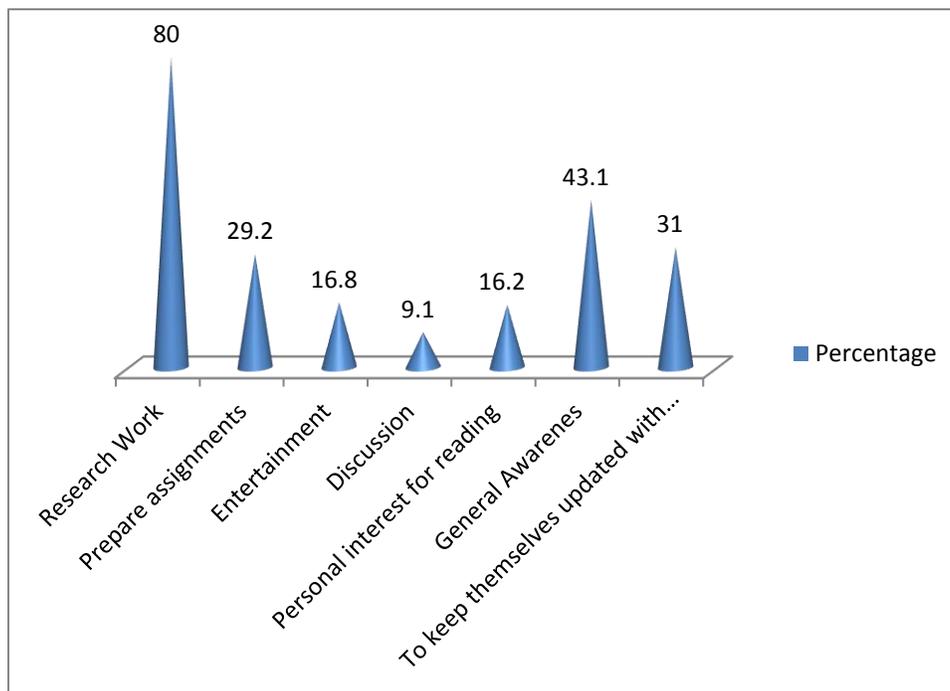
Figure 6

Status wise time spent each day in Library

Purpose of visits to Library

Study reveals that **Scholars** have a number of purposes to visit libraries in the select universities of J&K. It is observed that the searching of information for the purpose of **Research** is much more prevalent among **Research Scholars (80.0%)** in university of Kashmir, which is in line with the expectations**.** Figure 7 also reveals that a good proportion of Scholars (43.1%) visit library for **General awareness.** The purpose of **preparing the assignments related to their courses** is seen among a good proportion of **Scholars** (29.2%)**.** The table also reveals that low proportion of respondents visit library for **Entertainment** and **Discussion** purposes. This is depicted as only some of the S**cholars, i.e.** 16.8% and 9.1% browse information for **entertainment** and **discussion** purpose. The number of **Scholars** (22.7%) who access information to meet their **personal interest** and **to keep themselves updated** is satisfactory.

Figure 7
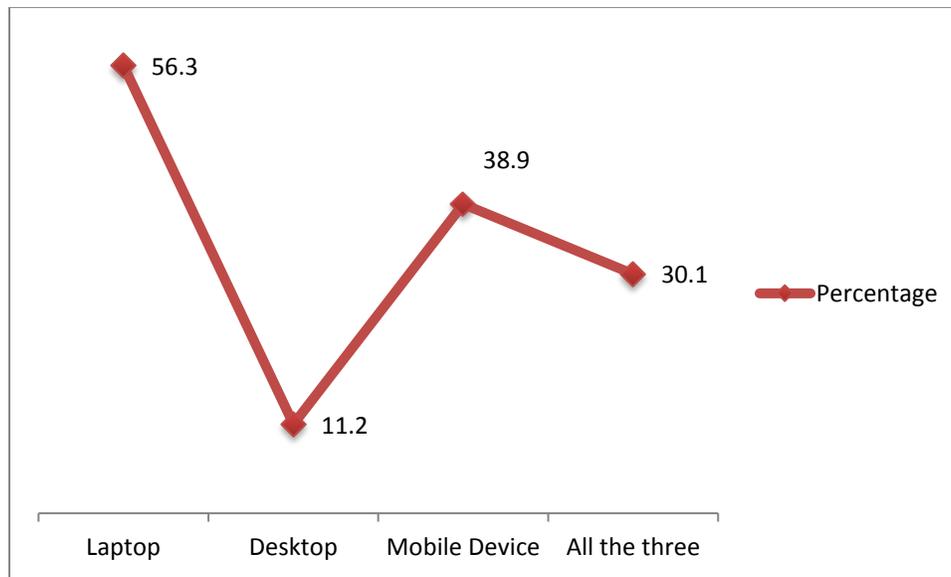**P**urpose of seeking information**

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

Gadget used for Accessing Information

Scholars use various Electronic Gadgets/Devices to access electronic information in the universities. Figure 8 indicates that among the three electronic devices, Laptops are the most used (56.3%) devices by the scholars in the select university, followed by Mobile devices (38.9%), while the least used electronic gadgets are Desktops (11.2%). It indicates that the trend of using desktops is decreasing and that of laptops and mobile devices is increasing nowadays.
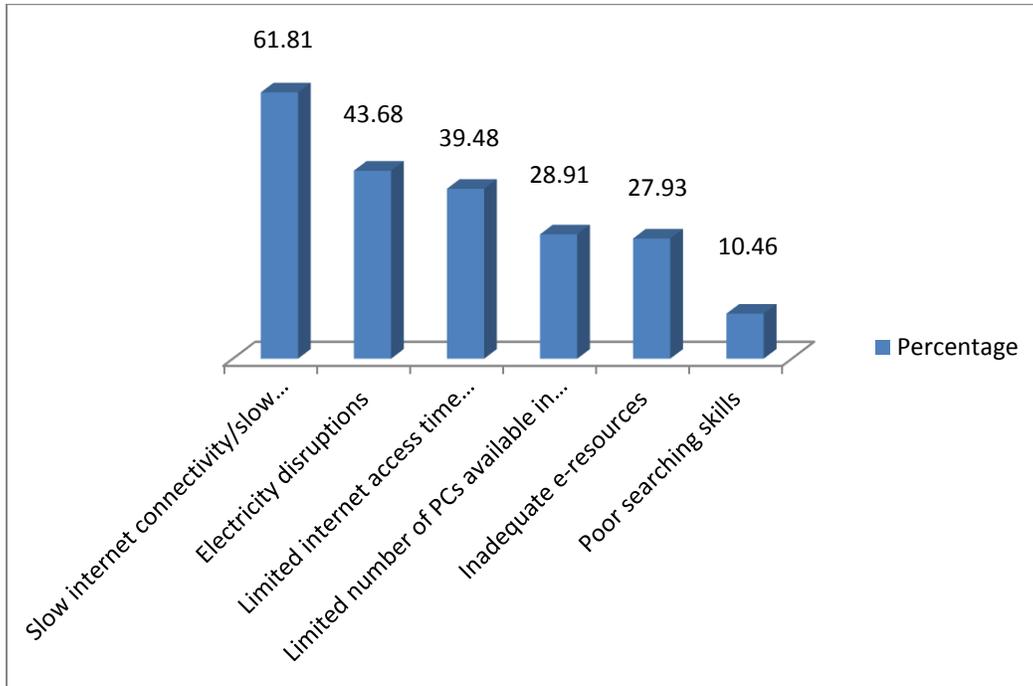
Figure 8

Use of Gadgets

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

Barriers in Accessing Electronic Resources

Electronic resources satisfy information needs of users to a greater extent. While accessing these resources researchers in university of Kashmir face many hindrances or barriers. It is comprehended from Figure 9 that majority of the researchers face **slow internet connectivity** (61.81%) in the university, followed by **electricity disruptions** (43.68%) and **limited internet access time (39.48%)** provided by the university administration. **Inadequate electronic sources** are available in the libraries is the opinion of 27.93% respondents. Besides, least portion of respondents (10.46%) feels **lack of searching skills** for accessing electronic resources without any difficulty.

Figure 9
Barrier faced while using electronic resources

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

Model based on the findings of study

 In the light of findings of the study, a model is designed in which the main findings related to their information seeking behavior are shown in the braces in red text and the model is presented as following:
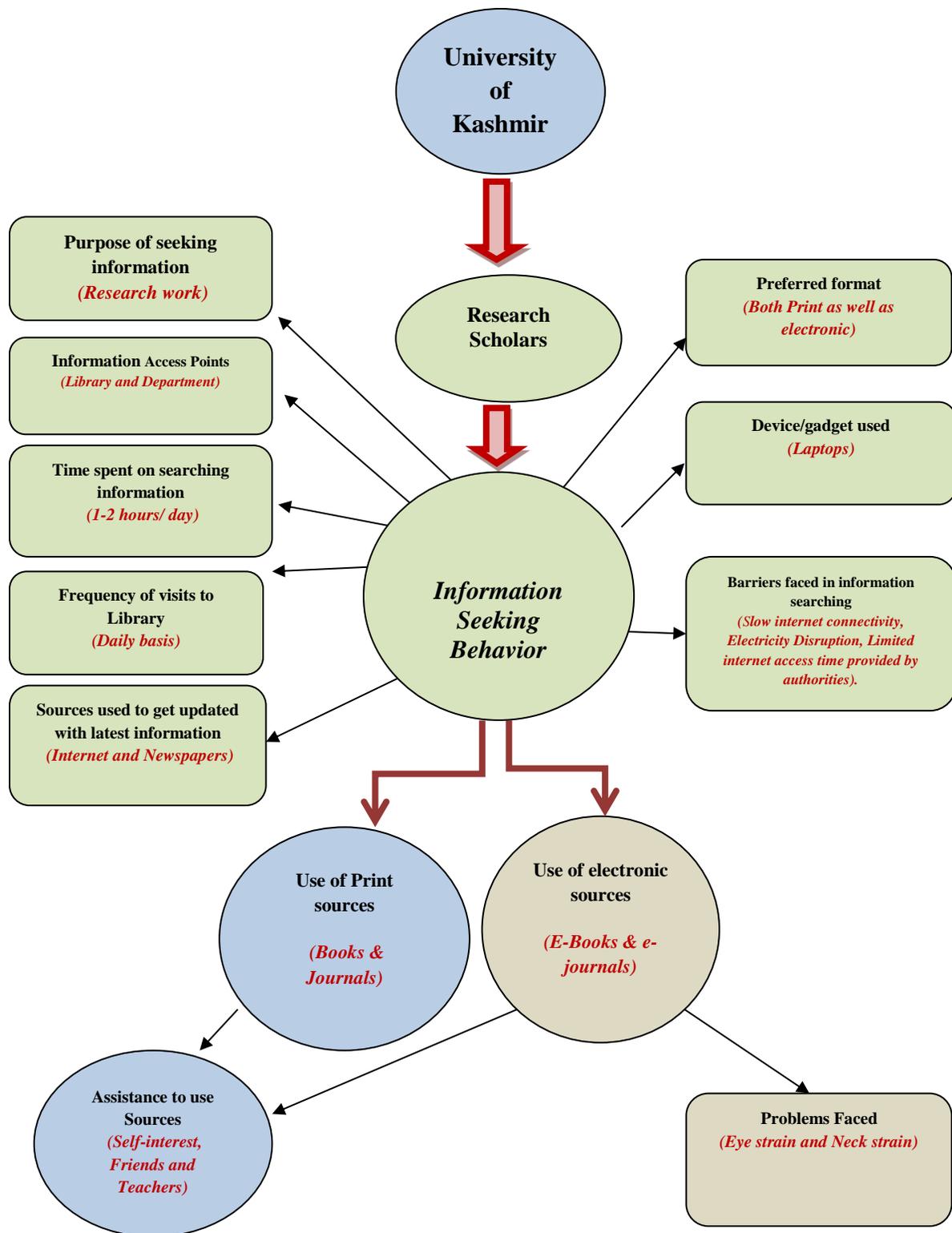
University of Kashmir

Research Scholars

Information Seeking Behavior

Purpose of seeking information
(Research work)

Information Access Points
(Library and Department)

Time spent on searching information
(1-2 hours/ day)

Frequency of visits to Library
(Daily basis)

Sources used to get updated with latest information
(Internet and Newspapers)

Preferred format
(Both Print as well as electronic)

Device/gadget used
(Laptops)

Barriers faced in information searching
(Slow internet connectivity, Electricity Disruption, Limited internet access time provided by authorities).

Use of Print sources
(Books & Journals)

Use of electronic sources
(E-Books & e-journals)

Assistance to use Sources
(Self-interest, Friends and Teachers)

Problems Faced
(Eye strain and Neck strain)

Fig.10: Information seeking model of Research Scholars in University of Kashmir

It is comprehended from the designed model that the information seeking behavior of Research Scholars in University of Kashmir is influenced with the advancement in the information technology. Following points are evident from the model:

- The main **purpose** of seeking information among the Research Scholars in University of Kashmir is **Research work**.
- They mostly use **Library** and **Department** for searching the needed information.
- Research Scholars prefer to visit Library on **daily basis** for seeking information related to their research and spend 1-2 hrs/day in Library for the same.
- Research Scholars mainly use **Laptops** as compared to desktops and mobile devices for seeking their desired information.
- Research Scholars prefer to use **Books** and **Journals** among all the print information sources and **e-Books** and **e-Journals** among the electronic information sources.
- They use **Internet and Newspapers** mostly to get updated with the latest information related to their research.
- It is evident from the model that research scholars face a number of barriers while accessing the needed information from the electronic resources **including slow internet connectivity, electricity disruption, limited internet access time** provided by authorities. They also face some physical problems while browsing electronic resources like strain in their eyes and Neck.

Findings & Conclusion

Increase in availability of information channels has influenced the Information seeking behavior of users especially Research Scholars in higher academic institutions. The study comprehensively explores the information-seeking behavior of Research scholars in University of Kashmir. The study revealed that the main purpose of the respondents is to seek information related to research work rather than general awareness, entertainment etc. The use of information technology in the university is quite evident and the results reveal that Scholars prefer to access needed information mainly using Laptops. The use of desktops is diminishing across the university under study. Research Scholars mostly use internet and newspapers to keep themselves updated with the latest information and thus highlight the implication of technological advancements. Despite witnessing of high technological advancements,

respondents still rely upon print sources to a larger extent. Among the print sources, Books are being mostly preferred by the respondents while as Conference Proceedings and Repositories are being meagerly used. While as among the electronic sources, they mostly prefer to use e-journals and e-books compared to other electronic sources. Research Scholars feel strain in eyes and strain in neck while accessing electronic resources. Slow internet connectivity/slow downloading speed, electricity disruptions and limited internet access time provided by the University administration are the major barriers faced by respondents in their concerned universities.

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