

## **To Study the Impact of Digital Information Seeking Behaviour of Research Fellows in Private Universities of Karachi**

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**ABSTRACT :** *The research study was focused on to reveal the digital information seeking behaviour of research fellows (M.Phil. / Ph.D.) of private universities in Karachi. With the uprising of information & Communication Technologies (ICTs) flow of information is rapidly enhanced. User needs are fulfilled through a single click. Wide-ranging reading of volume of information is an additional dilemma. It is a reality that wide range information create ambiguous in taking final decision. In this circumstance inspired information seeking is exceedingly tricky. The study examined and realized the behaviour of research students towards the information, to investigate the main sources of literature consulted by students, to determine students' awareness of the resources available to them, to establish whether students have had any instruction on use of resources or not. The summary of findings revealed that there is significant association between the respondents with regard to their research information needs, use of information sources, awareness of digital information of the respondents, searching skills and satisfaction about quality of information. With the help of findings some concrete recommendations are listed in the end of study.*

**KEYWORDS:** *Information Seeking Behaviour, Research Fellows, Electronic Resources*

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### **I. INTRODUCTION**

With the beginning of the 21<sup>st</sup> century we are truly in the commencement of the information age and as the name of “information age” implies, information is at the core of the functioning of today’s world and the societies and organizations which constitute it. In this era the integration and intelligent use of information is a prerequisite of success at all levels and inability or deficiency in information usage imposes heavy penalties at the individual, organizational, social and global levels. At this information explosion age, our lives now based on information. To succeed in this information era, one desires a variety of information. Without being well informed people may not be successful in their respective fields. Information are rapidly growing, the world’s information is doubling in every two years. In year 2011 1.8 zettabytes or 2.12506492000,000,000,000,000,000 bytes data is generated on internet, According to 2013 study 90% of internet data or information in the world has been generated in 2012 & 2013. With the uprising of ICTs (information & Communication Technologies) stream of information is extremely increased. As compare to past access to information has become speedy and inexpensive. Anyone can easily access information from his home or office through internet, digital as well print media. This excess of information also causes a number of troubles as searching and access to all formats is impractical. User needs abridged and brief information. Wide-ranging reading of volume of information is an additional dilemma. It is also reality that extreme information ambiguous decision. A user cannot take judgment or draw a conclusion due to diversity of perspective and opinion. Selection of accurate information from mass of information is too a big difficulty. In this circumstance an inspired information seeking is exceedingly tricky so far very much required.

There are numerous ways to acquire most recent, bona fide and reliable information. In the information language we call it information seeking. The level of access to information in addition to other aspects also depends on individual’s information seeking habits, behaviors and skills. Information seeking has been defined as “an activity of an individual that is assumed to identify a message that satisfies the perceived needs” (Adewole, 1984, Nwokedi and Haruna 2005). Devadason and Lingam (1977) agreed that through understanding information seeking patterns of different professionals groups, it is easy to plan and implement provision and access to information in their fields of interest. Researchers’ information needs are specific and relevant to their research area. For fulfillment of these needs they interact with various online or digital sources. This process is known as Digital information seeking behaviour of research fellows.

Ge, X. (2010) revealed that the recent forms of technology have changed the information environment in which social sciences and humanities researchers work. The pursuit of knowledge has been revolutionized, mainly through the vast expansion of data accessible via the Internet. Increased knowledge of the information-seeking behaviors of social sciences and humanities researchers is crucial to meeting their information needs. Keeping in view the use of internet and use of digital material & demand for digital access to information resources by research fellows, there is a need to study digital information seeking behaviour of research fellows and readiness of university libraries to meet the researchers' demands.

## II. LITERATURE REVIEW

The literature is classified in three groups; digital information resources, information needs, and digital information seeking behaviour.

**Digital information resources:** There are various researches have been conducted on the use of digital information resources by different researchers around the world. In 2013 Gakibayo et al. carried out a study at Mbarara University Library Uganda regarding the use of digital information resources by university students. Results were tabularized and it shows that a large number of respondents were aware with the full use of technology in utilizing digital resources. The above research results ascertained that the use of digital resources in Mbarara University is frequent but to make their research more effective and useful they need advanced training for using digital resources. Natarajan et al. (2008) revealed the users of Annamalai University library were aware of digital journals only among all the other digital resources and 50% of the users are fulfilled from digital resources and it was also observed that digital journals were only source used comprehensively by users and the digital dictionaries and digital encyclopedias were the digital resources with the least usage. The study tells that users are not well aware with the provided resources and they cannot identify their actual need properly because of which the satisfaction is below average.

The use of internet based digital resources at Manipur University, India. This study identify the utilization, rationale, difficulties and satisfaction level of users about internet based digital resources services provided by the library and they conclude that low speed internet, irregular power supply and lack of required full text journals. According to findings the use of internet based digital resources by the students of Manipur University is not found very significant. The reason might be those problems which they are facing while accessing these resources (Singh, et al., 2007). In 2008 a survey was completed by H.R. and Mudhol who completed a survey at College of Fisheries, India. The research study revealed that respondents were highly satisfied about the level of access for the use of digital information sources. The study confirmed that the digital information sources users are very satisfied with their retrieved results and as the sample is limited to faculty, research scholars and post graduate students to the main reason for using digital information sources is the research in which they are currently involved. It seems that they are well aware with the usage of such digital resources. Mostafa (2013) carried out a survey at some selected private universities of Bangladesh about the use and impact of digital resources. According to results, majority of the respondents gave preference to digital thesis among all other digital resources likewise digital books, digital newspapers and digital magazines. The study exposed the fact there are sufficient digital resources available in the campus and students use those digital resources frequently but is need to modify infrastructure and training courses as well.

Okiki et al. (2011) had conducted a survey in Nigeria to determine the use of digital information sources by post graduate students in Nigeria. Results showed that a large number of respondents use digital information sources daily they are motivated to use digital information sources for their research projects. According to tabulated results show connection in a major problem faced by the respondents. The post graduate students in Nigeria are being motivated for the utilization of digital information resources because of which the use of digital information is found extraordinary among them.

**Information Needs:** Fabritius (1997) investigated the information seeking behaviour of journalists. The main purpose of the study was to investigate the role of digital information in journalism, how journalists use latest information technology and how new digital technologies sustain news reporting. The journalists' information searching behaviour was examined by means of major hierarchical aspects. Fabritius places information seeking and salvage into a wider framework which have an effect on the loom to information sources and application of information. Otike (1999) revealed the information needs and seeking behaviour of lawyers in the United Kingdom (UK). The main objectives of the study were; discovering the nature of information lawyers acquire in the United Kingdom, to find the ways how lawyers recognize and retrieve any information and conclude the factors that manipulate their information needs and seeking habits. The findings of the study show that 53.8% of

the lawyer community needs comprehensive information. Mostly lawyers acquire this information from review articles in research journals of law subject, law reports, or matters augmented in text books. About 46% of lawyers use concise and realistic information. The study reveals that information seeking behaviour of lawyers is based on their information need. Their seeking behaviour explains that they acquire information through their own sources, contemporaries and themselves from law journals. Mahmood (2007) conducted a survey research on Parliamentary Information Needs assessment: a Pakistan perspective. The main objective of the study was to evaluate the basic information needs of graduate parliamentarians in Pakistan. According to Mahmood's study, parliamentarians use internet, digital media, and print media as information sources. The major subjects on which they required information are Education, Economy, Health, Poverty, Energy, Science & Technology, Agriculture, Environment and Development. Kumari (1997) conducted a research on the information use pattern of Ph.D. research scholars in pure science subjects of the University of Kerala. Approximately all the research scholars are agreed that the foreign research journals collection must be improved. The research revealed that 40% of the research scholars have publications. Research scholars are aware of the indexing and abstracting periodicals in their subject and they greatly make use of these for their research work. Information needs and seeking of research scholars varies from subject to subject. The information sources like supervising teachers, fellow researchers, conferences etc. play a fundamental role in the information use of researchers.

**Digital information seeking behavior :** Research in the domain of information needs, information seeking and information seeking behaviour started in early twentieth century. Whereas tracing the history of information seeking and behavioral studies, few studies were carried out in the early 1900s, Ayres and McKinnie in 1916 revealed the information seeking at the Cleveland Public Library. Tibbo informs that a distinguished production of studies on the subject took place in the 1960s [e.g. a study by the American Psychological Association, 1963 - 1969 and Earle and Vickery's study in 1969]. Wilson (2000) discovered an early importance on the use of information systems with a more person-oriented approach growing later in the 1980s. Although early user-centred research concentrated on the scientific community, it rapidly expanded to integrate educational institutions to investigate students and staff's actions and inspirations when using the technology. According to Francis (2008), "Researchers and practitioners in the field of LIS have long held an importance in the information-seeking behaviour of diverse patron groups. Research in this part dates back to the 1940s and the deliberate was on scientists." Since then, studies rapidly improved, preliminary with those proposed to get better collection development, followed by folks that investigated the research behavior of individuals approach that observed the system as seen by the user. Studies on web information seeking behaviour emerged afterward, and many pin down the mid-90s as the exact initial point. Jansen & Spink (2004) propose that the most primitive studies of web searching behaviour in the mid-90s occurred as web search engine and web browser use began to grow, mainly in academic environments.

Author discovered the behavioral outline with special reference to electronic databases and the World Wide Web. Different models of information seeking behaviour were presented and the complexities in the procedure of searching were explored. These researches offer insight into the seeking behaviour in the course of electronic systems (Wilson, 2006). Asemi (2005) agreed to understand the information searching habits of internet users at the Medical University of Isfahan. The purpose of the study was to examine the position of information searching character of the users on internet. Data was collected using a questionnaire trailed by interview with users from five faculties. 188 users responded to the study. Study revealed that students use internet extensively, and it inhabits an important position with diverse sources. Study also revealed that electronic media has not substituted print media.

A study of Brazilian social sciences scholars found that, while print resources are still the most frequently used, electronic resources are becoming more and more accepted. Access to networked computers is the main barrier to the use of databases and other electronic resources. Francis (2005) focused on a study that explained the information seeking behavior of social sciences faculty at the University of the West Indies (UWI). One of this 2005 study's findings was that social scientists have a preference for journal articles in electronic format over print. Wang (2007) wrote about disciplinary and cultural differences among information seekers in the Internet age, concluding that there are distinctions across disciplines and cultures in terms of how they rank the importance of these resources and how much they use them. Wang further discussed the information needs, information-seeking behaviors, and resource use of selected special interest groups. Nazli (2001) studied the information seeking behavior of user community at the Islamia University of Bahawalpur Library. Khan & Shafiq (2011) explored the Information need and information-seeking behaviour: a survey of college faculty at Bahawalpur. Most recently Tariq (2013) completed her research on Trends in using electronic resources by students of faculty of Science, University of Karachi. The main purpose of the study was to know

the latest trends of use of digital resources or digital information seeking behaviour of students of Science faculty at university of Karachi.

**Scope :** The study was limited to all research students of M.Phil. and Ph.D. in private Universities of Karachi.

### III. METHODOLOGY

The targeted population for this study was research fellows of M.Phil. and Ph.D. in Private Universities of Karachi. A questionnaire was developed through digital tool on Google docs, and multi-tiered approach was adopted to reach the population and get the most out of the response rate. Questionnaire was sent through email and through physically reached at private universities campuses. Questionnaire was distributed among selected 7 private universities of Karachi. The population is large and diverse. Therefore, stratified random sampling design was adopted. The overall sample size of the study was 82 research fellows of M.Phil. & Ph.D. in private universities of Karachi.

### IV. RESEARCH QUESTIONS

The basic purpose of this study is to find out the digital information needs and seeking behavior of research fellows in private sector universities of Karachi. Following research questions will support and direct the study

RQ1. Are there a significant association / difference between the respondents with regard to their research information needs?

RQ2. Are there a significant association / difference between the respondents with regard to use of information sources?

RQ3. What is the digital information seeking behaviour of research fellows of private universities in Karachi?

### Findings

#### *Demographic Characteristics*

**Composition of the respondents by Age :** Study revealed that majority of the respondents were of 29-32 years of age followed by age groups of years 24-28, 33-36 years, 37-40 years and above 40 years.

**Composition of the respondents by Gender :** Result shows that most of respondents were male (53) and female respondent were (29). The ratio revealed that male research fellows dominate over female counter parts in Social Science research in Karachi.

**Composition of the respondents by Institution :** The responses rate of 3 universities was high, these universities are Hamdard University (30), Iqra University (24) and Shaheed Zulfiqar Ali Bhutto (SZABIST) response rate was (12). Responses from remaining four universities was low; Indus University (3), Muhammad Ali Jinnah University (4), Preston University (5; 6.1%) and BIZTEK (4). Response reflected that number of enrolled research fellows is high in Hamdard University and Iqra University.

**Composition of the respondents by Program / Area of Study :** Findings reveal that majority of research fellows are enrolled in Social Sciences research (48); Education (22) and Economics (12).

**Composition of the respondents by status of enrolments (Semester-wise) :** Study revealed that the composition of the respondents with the highest semester representation in research (25); followed by the first semester (13), second semester (9), third semester (14) and fourth semester (21).

**Composition of the respondents by use of Digital Information :** The results of study show that all research fellows are using digital information for their research purpose and there is no single research fellow who never used digital information during research. Majority of research fellows were using digital information from 2-3 years (33), followed by research fellows were less than 1 year (4), 1-2 years (24) and above 3 years (21). The table also revealed that majority of research fellows was using digital information more than two years. After HEC digital library arrival almost every university student is using digital information.

**Composition of the respondents by General Reading Habit :** Study revealed the general reading habit of research fellows of private universities in Karachi. Most of respondents read to learn acquire knowledge/ information (29), followed by to enhance skills (18), to enjoy (24), as a hobby (12) and for other purpose (3).

Majority of respondents were like to read in English language (53), followed by Urdu (17) and in all languages (9). Most of research fellows prefer to use print material (books/journals) as information source (25); other research fellows responded they were like to use Online Databases (19), Digital Format i.e. CD-ROM, DVD etc. (8), Internet (19) and Email (11). Table also revealed that all research fellows are using internet and there is no single research fellow was found who never used internet. Greater part of respondents were used internet regularly (44), followed by Always (25), Sometimes (8), rarely (5). Majority of respondents were like to use internet at home (42), followed by at university computer lab (21), at university library (13) and at public library (6). A large number of respondents use internet on daily basis (35) followed by weekly (29), fortnightly (7), monthly (7) and on need basis (4). Most of research fellows use internet 2 hours daily (29), followed by half hour (2), an hour (8), Half an hour (21) and more than two hours (22). Majority of research fellows prefer to visit search engines websites eg. Google, Yahoo, Alta Vista etc. (28), followed by databases (25); Online library catalogue (OPAC) (12), Online library portals (8) and other websites (9). Most of research fellows prefer to read newspaper Jang on Internet (31), Dawn (22), The News (13) and Express (16).

**Composition of the respondents by use of Digital Information :** The responses shows that huge number of respondents often use of digital information (42) followed by never O, rarely (7), sometimes (12) and always (21). Research fellows' majority always use digital information to work on assignments (34), followed by often use (33), sometimes use (9) and rarely (6). Table also revealed that respondents often use computer to get access to digital information, followed by always (26) and sometimes (8). It is good sign that most of researchers are well aware regarding digital information and sources of digital information and frequently use of these information sources.

**Composition of the respondents by awareness of Digital Information :** The study exposed that most of research fellows have often knowledge about digital information (28), followed by always (24), sometimes (21). Majority of respondents also know the function of digital information. Greater part of respondents often know the function of digital information (32), followed by always (25), sometimes (20) and rarely (5). Table also revealed that generally research fellows have often knowledge about when to use digital information (30), followed by sometimes (24), always (22) and rarely (6). Majority of respondents replied that the digital information often helps in searching of the information accuracy (41), followed by always (22); sometimes (16) and rarely (3). Table shows that most of research fellows responded the digital information often is the easiest way to search information (38); followed by always (24), sometimes (13) and rarely (7).

**Composition of the respondents by Digital Information Searching :** Study revealed research fellows majority agreed that they have skillful to information search using subject heading (39), followed by strongly agreed (24), neutral (15) and disagreed (4). Mostly respondents also stated that they are skillful in information searching using title search; majority were agreed with this statement (47), followed by strongly agreed (23) and neutral (12). Researchers also have good knowledge of author search on internet. Mostly researcher agreed that they have good knowledge of information searching using Author search (41), followed by strongly agree (27) and neutral (14). Research fellows majority also agreed that have knowledge of information searching using symbols (24), followed by strongly agreed (17), neutral (18), disagreed (16) and strongly disagreed (7). A large number of respondents also agreed that they have knowledge of information searching using phrase searching (38), followed by strongly agreed (26), neutral (12) and disagreed (6). When asked about researcher's skills information searching using Boolean search techniques mass agreed that they have good knowledge about Boolean search techniques (35), followed by strongly agreed (23), neutral (35) and disagreed (5). Majority also have knowledge of advance searching techniques. (31) Researchers agreed that they have knowledge of advance searching, followed by strongly agreed (21), neutral (18), disagreed (8) and strongly disagreed (4). A large number of respondents agreed that they have knowledge regarding information searching using e-journals (26); followed by strongly agreed (22), neutral (21), disagreed (10) and strongly disagreed (3). Furthermore, when they asked about information searching using online databases mostly research fellows agreed that they have good knowledge about online databases searching (34), followed by strongly agreed (26), neutral (165) and disagreed (6). This study also discovered that majority of research fellows have good skill of information searching using online theses/ dissertation. Majority of respondents agreed that they have good knowledge of information searching using online theses/ dissertation (32), followed by strongly agreed (20), neutral (18), disagreed (8) and strongly disagreed (4). Table also shows that mostly research fellows agreed with this statement that they have knowledge of Information search using OPAC (Online Public Access Catalogue) (38), followed by strongly agreed (24); neutral (14) and disagreed (6). Respondents have good knowledge of information searching using websites, mostly research fellows agreed with this statement that they have good

knowledge of information searching using website (43), followed by strongly agreed (29), neutral (8) and disagreed (2)

**Composition of the respondents by Quality of information that influences the student satisfaction :** Results revealed that researchers' satisfaction about quality of digital information available. The study results reflected that a large number of respondents are agreed (38) that digital information provides wide range of information in varieties a field, remaining respondents strongly agreed (22), neutral (14), disagreed (6) and strongly disagreed (2). Mostly respondents agreed (32) that digital collection are up to date and relevant, remaining respondents stated strongly agreed (24), neutral (18) and disagreed (8). A large number of respondents strongly agreed (29) that digital information needs short responsive time in displaying, residual agreed (28), neutral (15), disagreed (6) and strongly disagreed (4). study revealed that majority of research fellows believed that provided digital information is reliable, results shows that respondents (29) has been strongly agreed, followed by agreed (24), neutral (17), disagreed (12) and strongly disagreed (7%). Table shows that mostly research fellows agreed (37) with this statement "information provided are protected from an unauthorized access (eg.,Emeraldinsight, JStore, EbscoHost etc.)", remaining respondents stated that they are strongly agreed (24), neutral (14) and disagreed (7). Majority of respondents satisfied with the information provided in the database agreed (32), strongly agreed (26), neutral (18) and disagreed (6). This study revealed that mostly respondents satisfied with the terminology used in the digital information. 26 respondents agreed and 18 respondents were strongly satisfied with the terminology used in digital information, remaining 21 respondents were neutral, 12 respondents were disagreed and 5 respondents were strongly dissatisfied with terminology. Mostly respondents were agreed (35) with this statement "digital information is the best information sources in helping researcher completing his/her work". Remaining respondents were strongly agreed (31), neutral (12) and disagreed (4). Mostly research fellows were agreed (38) that they would like to use digital information in future, 32 respondents were strongly agreed to use digital information in future, remaining 8 respondents were neutral and 4 respondents were strongly disagreed to use digital information in future. Table explained that majority of respondents were agreed (34) with the statement "the needed digital information is accurate and fulfill researcher needs", 29 respondents were strongly agreed with statement, 13 respondents were neutral and 6 were disagreed with the statement.

## V. CONCLUSION

The main objective of the study was to investigate the digital information seeking behaviour of the research fellows of private universities in Karachi. The conclusion based on both kinds of data obtained is presented to address the research questions.

RQ1. Are there a significant association / difference between the respondents with regard to their research information needs? After data analysis this research study revealed that there is a significant association between the respondents with regard to their research information needs. Majority of research fellows of private universities search information through digital sources. Study exposed that research fellows have more than two years experience of digital information searching and use of digital information sources.

RQ2. Are there a significant association / difference between the respondents with regard to use of information sources?

Data analysis revealed that there is a significant association between the respondents with regard to use of information sources. Research fellows' majority use of digital information sources from more than two years; it shows that research fellows were well aware regarding digital information sources and use of digital information sources. Although they do not have information of all kind of digital resources but they have experience of exercise digital information sources.

RQ3. What is the digital information seeking behaviour of research fellows of private universities in Karachi?

The study revealed the digital information seeking behaviour of research fellows of private universities in Karachi. Majority of respondents were like to read in English language. Most of research fellows prefer to use print material (books/journals) as information source; other research fellows responded they were like to use Online Databases, Digital Format i.e.CD-ROM, DVD etc., Internet and Email . Study revealed that all research fellows are using internet and there is no single research fellow was found who never used internet. Greater part of respondents was used internet regularly. Majority of respondents were like to use internet at home. A large number of respondents use internet on daily basis. Most of research fellows use internet 2 hours daily. Majority of research fellows prefer to visit search engines websites eg. Google, Yahoo, Alta Vista etc. Research fellows prefer to read newspaper Jang & Dawn on Internet. Large number of respondents often use of digital

information. Research fellows' majority always use digital information to work on assignments. Respondents often use computer to get access to digital information. It is good sign that most of researchers are well aware regarding digital information and sources of digital information and frequently use of these information sources. Most of research fellows have often knowledge about digital information. Respondents also know the function of digital information. Greater part of respondents often knows the function of digital information. Study also revealed that generally research fellows have often knowledge about when to use digital information. Majority of respondents replied that the digital information often helps in searching of the information accuracy. Most of research fellows responded the digital information often is the easiest way to search information. Research fellows majority agreed that they have skillful to information search using subject heading, title and author search. Research fellows majority also agreed that have knowledge of information searching using symbols, using phrase searching, using Boolean search techniques, advance searching techniques, using e-journals search, online databases searching, using online theses/ dissertation, OPAC (Online Public Access Catalogue), using websites.

Researchers are satisfied about quality of digital information available. The study results reflected that a large number of respondents are agreed that digital information provides wide range of information in varieties a field, digital collection are up to date and relevant, digital information needs short responsive time in displaying, residual, provided digital information is reliable, information provided are protected from an unauthorized access (eg.;Emeraldinsight, JStore, EbscoHost etc.), the information provided in the database, terminology used in the digital information, digital information is the best information sources in helping researcher completing his/her work, agreed to use digital information in future, the needed digital information is accurate and fulfill researcher needs

## VI. RECOMMENDATIONS

Following recommendations are made on the basis of findings of the study:

- [1] Active programming of lectures, seminars, workshops, etc. should be initiated by Universities to promote the concept of digitization among research fellows of M.Phil. / Ph.D. programmes.
- [2] HEC should participate with universities for the promotion of digitization practices in universities. HEC should provide funding to universities and universities libraries specifically for use of digital resources and digital technology trainings, and digital technology acquisition for promotion of research culture among research fellows enrolled in M.Phil. &Ph.D. programmes.
- [3] Universities must train research fellows regarding digital information searching techniques using HEC digital library databases.
- [4] Information literacy/web literacy training programs should be followed up by training to impart high end information seeking skills on university research community. There should also be a greater emphasis on information literacy to mould research fellows into responsible users who are fretful about the value of the information they use. Information technology (IT) skills are the pioneer to or the base of effective web information seeking strategies.
- [5] Digital information seeking short courses/training workshops/seminar need to be offered during course work of M.Phil. / Ph.D. programmes.
- [6] Universities must equip their libraries with latest technologies and online databases for ease of research.
- [7] Libraries are recommended to connect in bigger orientation drives to educate research fellows about the importance of OPACs in information retrieval and to usually boost understanding of their services.

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