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Changing Information Seeking Behaviour of Users and its Impact on Libraries

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ABSTRACT: With over 17,000 libraries and 2.5 billion materials circulated annually in the United States alone, libraries are a ubiquitous part of the American landscape.^[1] However, as libraries modernize, they face an increasingly harsh budget environment, as well as technological disruption in media, scholarship, and education.^[2] The political, social, and technological environment is one of transformation and uncertainty.^[3]

As of 2004, U.S. library usage was experiencing growth in spite of predictions to the contrary at that time.^[4] Instead, the impact of technology on libraries has been mixed. While usage of some library services, such as reference assistance, has declined, there has been a well-documented increase in the usage of public libraries in the U.S. and Canada over the last decade.^[5] Most libraries have added services such as public computers, free Wi-Fi, and digital materials such as web sites and e-books, leading to higher overall usage of the library. Counties and cities also continue to invest in library infrastructure. As of 2012, library construction and renovation has remained steady.^[6] According to a 2013 survey by the Pew Internet and American Life Project, 54 percent of Americans ages 16 and older have used a public library in some way in the past 12 months.^[7] A similar poll of Britons, conducted in 2010, stated that 67 percent had visited a library within the last year.^[8] Public libraries remain very popular among all users, and as of 2014, younger patrons read and use the library at the same rate as older ones.^{[9][10]} Over 94 percent of Americans say that "having a public library improves the quality of life in a community."^[11]

KEYWORDS-information,behavior,users,impact,libraries

I. INTRODUCTION

At the same time, public funding of libraries has declined.^[12] While libraries have a positive reputation, it is clear that citizens value other government services over libraries when budgets must be cut. School and academic libraries have also faced both severe budget troubles and declining usage of traditional library services like reference and interlibrary loan.^[13] Budget cuts and closures of publicly funded libraries in the Canada and UK have begun to affect the availability of library services in those countries.^{[14][15]} A study conducted in 2014 revealed that number of visits to public libraries had dropped by approximately 12% since 2009, demonstrating the effects of this decline.^[16] Library functions, services, and usage are changing so rapidly that it is difficult to establish standards or measures of value. As these trends continue or accelerate, the status of libraries is likely to remain dynamic and unclear.^[17] Most libraries are moving existing staff into information positions instead of employing new information custodians, making a developing interest for expert improvement opportunities. The scope of expert advancement open doors for bookkeepers to teach themselves in great information rehearses expanded all through 2015 and will keep on developing in 2016, essentially because of two activities.^[18] The library has for quite some time been in charge of social affair, arranging, and shielding significant data. Present day research and information accumulation has made some amazing progress from the days libraries were overseeing and getting to probably the most punctual dial-up online databases.^[19] Today, advanced information is gathered in such overpowering sums that one of the greatest difficulties lies essentially in investigating the data to discover significant ends in the excess of information.^[20] Building up, keeping up, and growing an internet based life nearness is vital for libraries. Gregg Dodd, Director of Marketing at Columbus Metropolitan Library, clarifies the estimation of a computerized procedure obviously, saying, "Our clients live in an advanced world, so this is an imperative space to interface with them."^[21]

Classification of Library Trends

- Trends will be organized into seven categories:
 1. Society
 2. Technology
 3. Education
 4. Environmental
 5. Political
 6. Economics
 7. Demographics

Academic libraries



Centennial College's new Progress Campus library, opened in 2011.

College and university libraries are at the center of changes to the library system. Academic libraries must serve groups of users with diverse information needs and research skills.^[22] In addition to the structural challenges facing all libraries, academic libraries must also confront a rapidly changing educational and publishing environment, in which the value and cost of a university education is being questioned.^[23] A higher demand for accountability means academic libraries must prove their value and the value of the university system.^{[24][25]} Several institutions have attempted to assess the impact of academic libraries on student success, but have often struggled with student privacy concerns.^[26] The University of Minnesota recently published results of a major study on the impact of library use on student success. The study found that there are statistically relevant data showing first-year undergraduate students who use the library have a higher GPA for their first semester and higher retention from fall to spring than non-library users.^[27]

A decline in the use of traditional library services at the university level suggests that students are looking elsewhere for information. A 2005 report from the Association of Research Libraries (ARL) stated that between 1995 and 2004, reference requests dropped an average 4.5 percent per year, and book checkouts fell 1.2 percent per year, though this varied depending on the type of academic library.^[28] Master's level libraries saw an increase in research inquiries during the same period.^[28] The ARL also documented a decline in reference requests and borrowing between libraries from 2009 to 2011.^{[29][30][31]} In 2007, regarding the issue, University of Illinois Graduate School of Library and Information Science professor Jerome McDonough observed that in terms of undergraduate usage, "We're losing clientele; students may come in the library to study, to socialize, to hit the newly installed cafe designed to lure them in, but they're not using library materials, or library services, at anything like the rate they did even ten years ago."^[32]

The increasing costs of access to academic journals, and the speed with which information resources are growing, suggests that academic libraries will not be able to maintain a traditional lending and accession model for much longer.^[33] Academic libraries are exploring a new model for service delivery, known as "digital commons" and/or

"scholars' commons," that focuses on access, information quality, and information literacy as opposed to collecting a large number of print books and journals.^[33] Many campus libraries have remodeled their physical facilities in order to attract students, adding computers, cafes, classrooms, outlets, and study areas.^[34]

Many libraries are considering offering publishing services to academics under an open access model.^[24] The growing demand for publishing services suggests new roles and responsibilities for academic libraries in the future.^[35] The establishment or reestablishment of academic and university presses may offer a new economic model for academic libraries.^[36] A 2011 survey of member institutions of ARL, the Oberlin Group, and the University Libraries Group found that approximately half of the respondents had or were developing library publishing services.^[37] Copyright issues and technological limitations imposed by digital rights management are the strongest barriers to this transformation.^[33]

With changes on the horizon, the organizations that monitor academic library statistics are seeking new ways to assess value and impact.^[38] The Association of Research Libraries will no longer use monograph and serial costs as a metric, since "new data will be collected to more accurately reflect the modern environment of information management."^[30]

There is a connection with changes in academic libraries and Millennials, in fact it's the trend that's affecting libraries within the next five to ten years. "Millennials will have a significant impact on future user expectations. Researchers in the field of education are writing about how factors such as technology have a significant impact on how Millennials learn."^[39] In a study done with 27 colleges and universities participating, it is revealed that a majority of students, specifically 73 percent, use the library less than the Internet. A couple explanations for this are that it's simply easier to surf the web and they (millennials) are better at surfing the web than a library's catalogue.^[40] In a study conducted by the article's, "Millennials and technology: putting suppositions to the test in an academic library," authors, Pascal Lupien and Randy Oldham, reveal that "our students do use the library in large numbers, and that they appear to understand that they must use a variety of resources, including academic sources, to conduct research."^[40]

Public libraries



Boston Public Library's McKim Building, built in 1895 as a "palace for the people."

The picture is somewhat clearer for public libraries, where there have been strong increases in both visits to libraries and the number of books borrowed over the last decade.^[41] A survey by the Institute of Museum and Library Services (IMLS), the United States federal agency tasked with monitoring library usage, reported a 32.7 percent increase in physical visits between 2001 and 2010.^[5] The American Library Association also cited a significant increase in usage, with visits increasing 61 percent between 1994 and 2004.^[4] Similar growth was documented in Canada, where overall library usage surged 45 percent between 2000 and 2009, including a 16 percent increase in book borrowing.^[42] Even in countries that have documented a decline in the use of public libraries, public support

for libraries remains strong. Visits to libraries in the UK have declined 6.7 percent in the past five years, but 80 percent of Britons still view libraries as "essential" or "very important."^[14]

Recent growth in public library usage is likely driven by the Great Recession, as patrons take advantage of affordable entertainment, internet access, job search assistance, and educational resources.^{[43][44][45]} According to a 2011 Harris Poll Quorum, library patrons believe their usage of public libraries will remain steady or increase in the future. They report strong satisfaction with library services.^[46] Public library patrons value access to printed books and traditional reference services. Among Americans ages 16 years and older, 80 percent say borrowing books is a "very important" service libraries provide, and 80 percent say reference librarians fall into the same "very important" category.^[47] Library Journal noted a small but marked decrease in print circulation in 2012, and suggested that changing information behavior, an improving economy, budget cuts or some combination of these factors have begun to affect book borrowing.^[48]



The Seattle Central Library. This 11-story glass and steel building opened in 2004

In recent years, American libraries have also experienced an increase in Federal spending. In March 2018, the US Congress passed a bill that included significant increases in federal spending towards libraries. Part of this new spending bill provides \$27 million for the Innovative Approaches to Literacy (IAL) program, and \$5.7 million for the Library Services and Technology Act.^[49]

Beginning with the digitization of library catalogs between the 1970s and 1990s, libraries have added digital capabilities while continuing to provide traditional book lending and literacy services. As of 2014, 98 percent of libraries offer free wireless Internet to their patrons; 90 percent offer e-books for borrowing; and 98 percent offer formal or informal technology training.^{[50][51]} A large majority of libraries now use some kind of social media, like Facebook or hi5, to connect with patrons.^[51] The assistance of professional library staff is also valued by patrons. Over one-third of people who have ever visited a library say library staff had helped them use a computer or the Internet.^[52] In 2011, more than a quarter of all adults used a library for Internet access at some point.^[53] Free access to computers and the Internet is now nearly as important to library patrons as borrowing books.^[54] Fifty-five percent of Americans think libraries have done a good job keeping up with technological trends.^[11]

Libraries are also offering new recreation, entrepreneurial, and content creation opportunities.^[55] Libraries across the United States now lend musical instruments, tools, seeds, science equipment and information technology, like gaming consoles, laptops and e-readers.^{[56][57]} While media outlets describe this development as part of a struggle to say relevant in a digital age, librarians say it is an extension of the traditional services and programming public libraries offer their communities.^[58] In an interview with The Atlantic Wire about the trend, librarian and blogger Rita Meade said, "I think it's great that some libraries are able to lend out items other than books, because it shows



that they are responding to the needs of their particular community. But again, I do not see it as a desperate move to stay relevant... We've got relevancy coming out of our ears."^[59]

While patrons still value access to printed books, libraries' shift to offering a wide range of digital, educational, social and entrepreneurial tools appears to be permanent.^[60] The model is now attracting significant public investment. Libraries are rapidly establishing public makerspaces and workspaces to promote collaboration and entrepreneurship.^[61] In 2011, the Fayetteville Free Library in New York state became the first public library to offer a makerspace.^[62] Many other libraries, including the Chicago Public Library and Washington DC's MLK Library now offer 3D printing, print presses, rapid prototyping and manufacturing services to patrons.^{[63][64]} In 2014, the L.A. Public Library will begin offering high school diplomas to students.^[65] In partnership with the University of Arizona, the Burton Barr Central Library in Phoenix, AZ is now offering a co-working space and business incubator.^[66] The rise of entrepreneurial and content creation spaces may offer alternative funding models for some public libraries.

The way patrons use library buildings is also changing. Libraries offered 3.75 million public programs in 2010, the equivalent of one free program per day in every public library in America.^[5] Mirroring an increase in overall library usage, attendance at library programs increased by 22 percent between 2004 and 2008.^[67] Most public libraries offer classes, literacy programs and storytimes for children. Some public libraries, like the New York Public Library, are adopting the "bookstore model," characterized by remodeling in favor of more comfortable and attractive reading and meeting spaces, a broad offering of both bestsellers and literary works, user-friendly organization systems and excellent customer service, often including the elimination of library fines.^[68]

Despite increasing usage, adoption of new technology and strong popularity among voters, public libraries are bearing the brunt of budget cuts, with both state and municipal support for libraries declining.^{[12][69]} As cities and states confront budget shortfalls, libraries are often required to reduce hours, staff and locations.^[70] Multimillion-dollar cuts to public libraries are frequently proposed across the country, and libraries in general have faced budget cuts over the last four years.^[47] When explaining the rationale for budget cuts, officials often cite the rise of new technologies and the availability of alternative sources of information. However, voters continue to support public library funding. In 2013, 41 measures for new library funding were approved by voters; 19 were rejected.^[71]

It has been argued that as library budgets are cut fewer people use them.^[72]

School libraries

With public funding declining for both libraries and schools, school libraries face severe economic troubles.^[73] The number of school librarians has declined, with many school librarians being laid off or assigned to other teaching duties. Between 2010 and 2011, salaries for new school librarians fell two percent.^[74] Moreover, the decline in school library services seems unlikely to end soon as schools seek ways to reduce costs and consolidate services.^[75] Of all libraries, school libraries seem most likely to feel the impact of cuts to library funding via sequestration.^[73]

A study by School Library Journal, using statistics from the National Center for Education Statistics (NCES) showed that, "students in states that lost librarians tended to have lower reading scores—or had a slower rise on standardized tests—than those in states that gained librarians," and this effect couldn't be accounted for by overall staff reductions.^[76] In 2012 a joint study by the Education Law Center, the Health Sciences Library Consortium, and the Pennsylvania School Librarians Association demonstrated that "for all students, those with full-time librarians are almost three times as likely to have 'Advanced' writing scores as students without full-time librarians."^[77] Nevertheless, school libraries will have to deal with shrinking budgets and changing roles for both librarians and libraries.

Some school libraries are using the budget crisis as a driver for innovation. Benilde-St. Margaret's School, a Catholic preparatory school, removed nearly all physical books from their school library in 2011.^[78] Physical books were relocated to classrooms or donated to developing countries. According to Sue Skinner, Benilde-St. Margaret's principal, the school's commitment to ensuring all students receive their own computer made the change possible.

Close cooperation with public libraries also ensured that students still had access to printed books. "We weren't saying no to hard copy books," Skinner said. "But let's not duplicate what public and other libraries have."^[78]

According to a 2013 Pew Internet and American Life Project study, 85 percent of Americans age 16 and older think school and public libraries should "definitely" coordinate more closely with each other.^[52] That statistic is matched among younger Americans. Eighty-seven percent of Americans under 30 also think public libraries should coordinate more closely with local schools.^[10]

II. DISCUSSION

Information behavior is a field of information science research that seeks to understand the way people search for and use information^[1] in various contexts. It can include information seeking and information retrieval, but it also aims to understand why people seek information and how they use it. The term 'information behavior' was coined by Thomas D. Wilson in 1982^[2] and sparked controversy upon its introduction.^[3] The term has now been adopted and Wilson's model of information behavior is widely cited in information behavior literature.^[4] In 2000, Wilson defined information behavior as "the totality of human behavior in relation to sources and channels of information".^[5]

A variety of theories of information behavior seek to understand the processes that surround information seeking.^[6] An analysis of the most cited publications on information behavior during the early 21st century shows its theoretical nature.^[7] Information behavior research can employ various research methodologies grounded in broader research paradigms from psychology, sociology and education.^[8]

In 2003, a framework for information-seeking studies was introduced that aims to guide the production of clear, structured descriptions of research objects and positions information-seeking as a concept within information behavior.^[9]

Concepts of information behavior

Information need

Information need is a concept introduced by Wilson. Understanding the information need of an individual involved three elements:

1. Why the individual decides to look for information,
2. What purpose the information they find will serve, and
3. How the information is used once it is retrieved^[2]

Information-seeking behavior

Information-seeking behavior is a more specific concept of information behavior. It specifically focuses on searching, finding, and retrieving information. Information-seeking behavior research can focus on improving information systems or, if it includes information need, can also focus on why the user behaves the way they do. A review study on information search behavior of users highlighted that behavioral factors, personal factors, product/service factors and situational factors affect information search behavior.^[10] Information-seeking behavior can be more or less explicit on the part of users: users might seek to solve some task or to establish some piece of knowledge which can be found in the data in question^[11], or alternatively the search process itself is part of the objective of the user, in use cases for exploring visual content or for familiarising oneself with the content of an information service^[12]. In the general case, information-seeking needs to be understood and analysed as a session rather than as a one-off transaction with a search engine, and in a broader context which includes user high-level intentions in addition to the immediate information need^[13].



Information use

User studies vs. usage studies

Information poverty and barriers

Introduced by Elfreda Chatman in 1987,^[14] information poverty is informed by the understanding that information is not equally accessible to all people. Information poverty does not describe a lack of information, but rather a worldview in which one's own experiences inside their own small world may create a distrust in the information provided by those outside their own lived experiences.^[14]

Metatheories

In Library and Information Science (LIS), a metatheory is described "a set of assumptions that orient and direct theorizing about a given phenomenon".^[15] Library and information science researchers have adopted a number of different metatheories in their research. A common concern among LIS researchers, and a prominent discussion in the field, is the broad spectrum of theories that inform the study of information behavior, information users, or information use. This variation has been noted as a cause of concern because it makes individual studies difficult to compare or synthesize if they are not guided by the same theory. This sentiment has been expressed in studies of information behavior literature from the early 1980s^[16] and more recent literature reviews have declared it necessary to refine their reviews to specific contexts or situations due to the sheer breadth of information behavior research available.^[17]

Below are descriptions of some, but not all, metatheories that have guided LIS research.

Cognitivist approach

A cognitive approach to understanding information behavior is grounded in psychology. It holds the assumption that a person's thinking influences how they seek, retrieve, and use information. Researchers that approach information behavior with the assumption that it is influenced by cognition, seek to understand what someone is thinking while they engage in information behavior and how those thoughts influence their behavior.^[18]

Wilson's attempt to understand information-seeking behavior by defining information need includes a cognitive approach. Wilson theorizes that information behavior is influenced by the cognitive need of an individual. By understanding the cognitive information need of an individual, we may gain insight into their information behavior.^[2]

Nigel Ford takes a cognitive approach to information-seeking, focusing on the intellectual processes of information-seeking. In 2004, Ford proposed an information-seeking model using a cognitive approach that focuses on how to improve information retrieval systems and serves to establish information-seeking and information behavior as concepts in and of themselves, rather than synonymous terms.^[19]

Constructionist approach

The constructionist approach to information behavior has roots in the humanities and social sciences. It relies on social constructionism, which assumes that a person's information behavior is influenced by their experiences in society.^[18] In order to understand information behavior, constructionist researchers must first understand the social discourse that surrounds the behavior. The most popular thinker referenced in constructionist information behavior research is Michel Foucault, who famously rejected the concept of a universal human nature. The constructionist approach to information behavior research creates space for contextualizing the behavior based on the social experiences of the individual.

One study that approaches information behavior research through the social constructionist approach is a study of the information behavior of a public library knitting group.^[20] The authors use a collectivist theory to frame their research, which denies the universality of information behavior and focuses on "understanding the ways that discourse communities collectively construct information needs, seeking, sources, and uses".^[20]



Constructivist approach

The constructivist approach is born out of education and sociology in which, "individuals are seen as actively constructing an understanding of their worlds, heavily influenced by the social world(s) in which they are operating".^[18] Constructivist approaches to information behavior research generally treat the individual's reality as constructed within their own mind rather than built by the society in which they live.^[21]

The constructivist metatheory makes space for the influence of society and culture with social constructivism, "which argues that, while the mind constructs reality in its relationship to the world, this mental process is significantly informed by influences received from societal conventions, history and interaction with significant others".^[21]

Theories

A common concern among LIS researchers, and a prominent discussion in the field, is the broad spectrum of theories that inform LIS research. This variation has been noted as a cause of concern because it makes individual studies difficult to compare if they are not guided by the same theory. Recent studies have shown that the impact of these theories and theoretical models is very limited.^[22] LIS researchers have applied concepts and theories from many disciplines, including sociology, psychology, communication, organizational behavior, and computer science.^{[23][24]}

Wilson's theory of information behavior (1981)

The term was coined by Thomas D. Wilson in his 1981 paper, on the grounds that the current term, 'information needs' was unhelpful since 'need' could not be directly observed, while how people behaved in seeking information could be observed and investigated.^[2] However, there is increasing work in the information-searching field that is relating behaviors to underlying needs.^[25] In 2000, Wilson described information behavior as the totality of human behavior in relation to sources and channels of information, including both active and passive information-seeking, and information use.^[5] He described information-seeking behavior as purposive seeking of information as a consequence of a need to satisfy some goal. Information-seeking behavior is the micro-level of behavior employed by the searcher in interacting with information systems of all kinds, be it between the seeker and the system, or the pure method of creating and following up on a search.

Thomas Wilson proposed that information behavior covers all aspects of human information behavior, whether active or passive. Information-seeking behavior is the act of actively seeking information in order to answer a specific query. Information-searching behavior is the behavior which stems from the searcher interacting with the system in question. Information use behavior pertains to the searcher adopting the knowledge they sought.

Small worlds and life in the round

Elfreda Chatman developed the theory of life in the round, which she defines as a world of tolerated approximation. It acknowledges reality at its most routine, predictable enough that unless an initial problem should arise, there is no point in seeking information.^[26] Chatman examined this principle within a small world: a world which imposes on its participants similar concerns and awareness of who is important; which ideas are relevant and whom to trust. Participants in this world are considered insiders.^[26] Chatman focused her study on women at a maximum security prison. She learned that over time, prisoner's private views were assimilated to a communal acceptance of life in the round: a small world perceived in accordance with agreed upon standards and communal perspective. Members who live in the round will not cross the boundaries of their world to seek information unless it is critical; there is a collective expectation that information is relevant; or life lived in the round no longer functions. The world outside prison has secondary importance to inmates who are absent from this reality which is changing with time.^[26]

Navigators and explorers

This compares the internet search methods of experienced information seekers (navigators) and inexperienced information seekers (explorers). Navigators revisit domains; follow sequential searches and have few deviations or



regressions within their search patterns and interactions. Explorers visit many domains; submit many questions and their search trails branch frequently.^[27]

Sensemaking

Brenda Dervin developed the concept of sensemaking. Sensemaking considers how we (attempt to) make sense of uncertain situations.^[28] Her description of Sensemaking consisted of the definition of how we interpret information to use for our own information related decisions.

Brenda Dervin described sensemaking as a method through which people make sense of their worlds in their own language.

Anomalous state of knowledge (ASK)

ASK was also developed by Nicholas J. Belkin.

An anomalous state of knowledge is one in which the searcher recognises a gap in the state of knowledge. This, his or her further hypothesis, is influential in studying why people start to search.^[29]

III. RESULTS

Information seeking is the process or activity of attempting to obtain information in both human and technological contexts. Information seeking is related to, but different from, information retrieval (IR).

Compared to information retrieval

Traditionally, IR tools have been designed for IR professionals to enable them to effectively and efficiently retrieve information from a source. It is assumed that the information exists in the source and that a well-formed query will retrieve it (and nothing else). It has been argued that laypersons' information seeking on the internet is very different from information retrieval as performed within the IR discourse. Yet, internet search engines are built on IR principles. Since the late 1990s a body of research on how casual users interact with internet search engines has been forming, but the topic is far from fully understood. IR can be said to be technology-oriented, focusing on algorithms and issues such as precision and recall. Information seeking may be understood as a more human-oriented and open-ended process than information retrieval. In information seeking, one does not know whether there exists an answer to one's query, so the process of seeking may provide the learning required to satisfy one's information need.

In different contexts

Much library and information science (LIS) research has focused on the information-seeking practices of practitioners within various fields of professional work. Studies have been carried out into the information-seeking behaviors of librarians,^[1] academics,^[2] medical professionals,^[3] engineers,^[4] lawyers^{[5][6]} and mini-publics^[7] (among others). Much of this research has drawn on the work done by Leckie, Pettigrew (now Fisher) and Sylvain, who in 1996 conducted an extensive review of the LIS literature (as well as the literature of other academic fields) on professionals' information seeking. The authors proposed an analytic model of professionals' information seeking behaviour, intended to be generalizable across the professions, thus providing a platform for future research in the area. The model was intended to "prompt new insights... and give rise to more refined and applicable theories of information seeking" (1996, p. 188). The model has been adapted by Wilkinson (2001) who proposes a model of the information seeking of lawyers. Recent studies in this topic address the concept of information-gathering that "provides a broader perspective that adheres better to professionals' work-related reality and desired skills."^[8] (Solomon & Bronstein, 2020).

Theories of information-seeking behavior

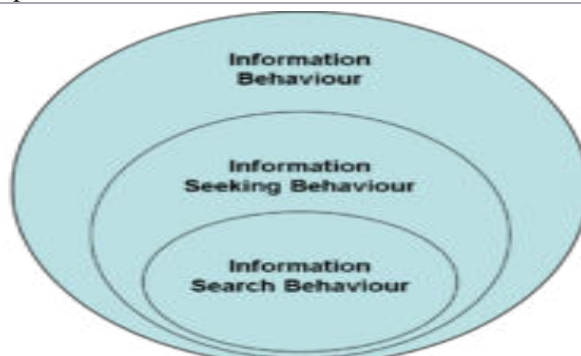
A variety of theories of information behavior – e.g. Zipf's Principle of Least Effort, Brenda Dervin's Sense Making, Elfreda Chatman's Life in the Round – seek to understand the processes that surround information seeking. In addition, many theories from other disciplines have been applied in investigating an aspect or whole process of information seeking behavior.^{[9] [10]}

A review of the literature on information seeking behavior shows that information seeking has generally been accepted as dynamic and non-linear (Foster, 2005; Kuhlthau 2006). People experience the information search process as an interplay of thoughts, feelings and actions (Kuhlthau, 2006). Donald O. Case (2007) also wrote a good book that is a review of the literature.

Information seeking has been found to be linked to a variety of interpersonal communication behaviors beyond question-asking, to include strategies such as candidate answers.

Robinson's (2010)^[11] research suggests that when seeking information at work, people rely on both other people and information repositories (e.g., documents and databases), and spend similar amounts of time consulting each (7.8% and 6.4% of work time, respectively; 14.2% in total). However, the distribution of time among the constituent information seeking stages differs depending on the source. When consulting other people, people spend less time locating the information source and information within that source, similar time understanding the information, and more time problem solving and decision making, than when consulting information repositories. Furthermore, the research found that people spend substantially more time receiving information passively (i.e., information that they have not requested) than actively (i.e., information that they have requested), and this pattern is also reflected when they provide others with information.

Wilson's nested model of conceptual areas



Wilson's Nested Model of Conceptual Areas (Wilson 1999)

Wilson's Nested Model of Conceptual Areas

The concepts of information seeking, information retrieval, and information behaviour are objects of investigation of information science. Within this scientific discipline a variety of studies has been undertaken analyzing the interaction of an individual with information sources in case of a specific information need, task, and context. The research models developed in these studies vary in their level of scope. Wilson (1999) therefore developed a nested model of conceptual areas, which visualizes the interrelation of the here mentioned central concepts.

Wilson defines models of information behavior to be "statements, often in the form of diagrams, that attempt to describe an information-seeking activity, the causes and consequences of that activity, or the relationships among stages in information-seeking behaviour" (1999: 250).

Information seeking behavior is the application of attitudes through set of actions in order to achieve desired information need. When attitudes and actions are collaborated the performance emerges. Based on the level of performance, the satisfaction level of the acquired information is determined. Information seeking behavior refers to



the way people search for and utilize information. The term was coined by Wilson in 1981, on the grounds that the then current 'information needs' was unhelpful as a basis for a research agenda, since 'need' could not be directly observed, while how people behaved in seeking information could be observed and investigated. (Wikipedia, 2016). Information Seeking Behavior is a broad term, which involves a set of action that an individual takes to express information needs, seek information, evaluate and select information, and finally uses this information to satisfy his/her information needs. "The study of information seeking behavior can be dated back to the late 1940's. Since that time a large number of studies have been carried out on the various aspects of information seeking behavior of individuals in different fields of specialization. Behavior of users towards seeking information depends upon the type of problem they undertake for research/study, availability of time, teaching requirements, information need and availability of sources of information. Wilson (2003) projected that "information behaviour covers all aspects of human information behaviour, whether active or passive. Information seeking behaviour is the act of actively seeking information in order to answer a specific query. Information searching behaviour is the behaviour which stems from the searcher interacting with the system in question. This system could be a technological one, such as the searcher interacting with a search engine, or a manual one, such as the searcher selecting which book is most pertinent to their query. Information use behaviour pertains to the searcher adopting the knowledge they sought" (Quoted in Gaba and Singh, 2015). The digital world is changing human information behavior and process. Focused almost exclusively on information seeking and using, information receiving, a central modality of the process is generally overlooked. As information seeking continues to migrate to the Internet, and artificial intelligence continues to advance the analysis of user behavior on the Internet across a range of user interactions, information receiving moves to the heart of the process, as systems "learn" what users like, want and need, as well as their search habits (Giannini, 1998). The micro and macro level researches are continued to progress on all disciplines that cause emergence of new concepts or subject areas. This creates necessity for understanding the users' information needs and information seeking behaviour. So, this phenomenon becomes instrumental for the conduct of continual research in the area of information seeking behavior. The knowledge of information needs and information-seeking behavior of different users of the library is quite essential as it helps in the planning, implementation, and operation of library and information system and services.

IV. CONCLUSION

Today is the age of information and communication technology and information is a key resource for the overall development of the person or a whole nation. Information is a basic resource, an integral part of human activity, and it plays a vital role in the scientific and technological progress of a country. Information plays a significant role in our personal as well as professional life. Information is growing day by day in different formats viz. primary, secondary and tertiary and available in different channels, formal and informal. Psacharopoulos (1982) discusses the necessity of information in the present age as "we can reorganize the educational system and redefine scientific research only with the help of information". Information plays a role of a decider in this era of cutting throat competition in every walk of life. Mahapatra (2014) explained that, "library being a service institution primarily provides information to its users. The provision of information disseminated by the library has significant value for the end users. The satisfaction that the users derive by obtaining such information is of immense value for their academic and research career as well as the library itself. In order to satisfy the user groups in a library, it is essential to identify the information needs of users and to determine the strategy of seeking information in a library. Once the information requirement is established and seeking behavior is determined, the library is able to develop its collection, improve its organizational work and provide right dissemination of information services". In this era of information explosion (in print as well as in digital form), peoples/users are confused about the access to right information, information needs, and various information sources. Again information access varies from person to person according to their needs. Thus, information seeking is a kind of communication behavior, which surely be influenced by many factors. It is necessary to know the information needs, seeking behavior and information sources used by the user community, in order to plan and develop a need-based and relevant collection of information resources in print as well as in electronic resources in this changing world wide digital environment. Lot of studies has been carried out on information seeking behavior in past and or going in present. But maximum studies were



limited to only explore the users' behavior towards their information seeking or habits. There should must be studies in which behavior will be correlated with users' satisfaction also.

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