Database Search Behaviors: Insight from a Survey of Information Retrieval Practices

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Abstract

This study examines the database search behaviors of individuals, focusing on gender differences and the impact of planning habits on information retrieval. Data were collected from a survey of 198 respondents, categorized by their discipline, schooling background, internet usage, and information retrieval preferences. Key findings indicate that females are more likely to plan their searches in advance and prefer structured methods of information retrieval, such as using library portals and leading university websites. Males, however, tend to use web search engines and self-archiving methods more frequently. This analysis provides valuable insights for educational institutions and libraries to optimize their resources and services based on user behavior patterns.

Keywords

Information Retrieval, Database Search, User Behavior Patterns

1. Introduction

Information retrieval is the process of accessing data resources. It generally means collection, storage and access of information. It assists the users in finding the information they require form large database collections. In the digital age, the efficiency of information retrieval has become a critical aspect of academic and professional success. The ability to effectively navigate databases and online resources can significantly influence the quality of research and learning outcomes. This study aims to explore the database search behaviors of individuals, with a particular focus on how these behaviors vary by gender and whether individuals plan their searches in advance. Previous research has shown that search behaviors can be influenced by a variety of factors, including educational background,

internet proficiency, and access to digital resources. However, there is limited literature on how planning habits impact search efficiency and the preferences for different information retrieval methods. Additionally, understanding gender differences in these behaviors can help in designing more inclusive and effective digital literacy programs.

The present study analyzes survey data from 198 respondents, segmented into various categories such as discipline, schooling background, internet usage, and preferences for information retrieval. By examining these variables, the study aims to provide a comprehensive understanding of how planning habits and gender influence database search behaviors. This analysis not only sheds light on the current state of information retrieval practices but also offers practical insights for educational institutions and libraries to enhance their support services. The results reveal significant differences in how males and females approach information retrieval, with females generally exhibiting more structured and planned behaviors. These findings have important implications for the design of digital literacy programs and the development of user-centric information retrieval systems. The study concludes with recommendations for optimizing resources and services to better meet the needs of different user groups.

1.1. Background

In today's information-rich society, the ability to efficiently retrieve relevant information from databases is paramount for academic and professional success. The digital revolution has transformed the landscape of information access, with online databases, digital libraries, and search engines becoming essential tools for research and learning. As the volume of accessible information grows, understanding the factors that influence effective information retrieval becomes increasingly important.

Previous research has highlighted several factors that affect information retrieval behaviors, including educational background, familiarity with technology, and the availability of digital resources. However, there is a gap in the literature regarding the specific impact of planning habits on search efficiency and how these behaviors vary across different demographic groups, particularly between genders. This study seeks to fill this gap by providing a comprehensive analysis of database search behaviors based on gender and planning habits.

Effective information retrieval is an essential skill in the digital age, influencing academic and professional success. The ability to efficiently navigate and utilize databases has been the focus of numerous studies, highlighting various factors that impact search behavior and outcomes.

Hargittai [1] emphasized the importance of digital literacy, noting significant disparities in online skills among different demographic groups. Van Deursen and Van Dijk [2] further explored these disparities, identifying a shift from mere access to technology to differences in usage and proficiency.

Gender differences in digital literacy and search behaviors have been widely

studied. Jackson *et al.* [3] found that males and females approach online searches differently, with males often exhibiting higher confidence but not necessarily higher accuracy. Ayyanar [4] focuses on the majority of Mechanical Engineering (Mech) students depending on information literacy skills to get the desired and relevant information for their research.

The impact of planning on search efficiency has also been documented. Bates [5] introduced the concept of "search tactics", highlighting the benefits of a structured approach to information retrieval. More recent studies, such as those by Bilal [6] and Fidel *et al.* [7], have reinforced the importance of planning, particularly in complex search tasks.

In the context of educational settings, Head *et al.* [8] identified that students' information-seeking behaviors are influenced by their familiarity with digital resources and their ability to effectively plan and execute searches. Additionally, research by Leeder [9] and Tsai *et al.* [10] has shown that instructional interventions can significantly improve students' search strategies and overall digital literacy.

1.2. Objectives

The primary objective of this study is to investigate the differences in database search behaviors between males and females and to determine how the habit of planning searches in advance influences these behaviors. Specifically, the study aims to:

1) Identify the percentage of respondents who plan their searches in advance and analyze this behavior by gender.

2) Examine the impact of planning habits on the preferred methods of information retrieval.

3) Explore the differences in search behaviors based on respondents' educational disciplines, schooling backgrounds, and internet usage patterns.

4) Provide insights for educational institutions and libraries to enhance their digital literacy programs and support services based on the findings.

1.3. Literature Review

Effective information retrieval is a multifaceted process influenced by cognitive, behavioral, and technological factors. Previous studies have shown that individuals with higher levels of digital literacy tend to be more efficient in retrieving relevant information [1] [2]. Digital literacy encompasses not only the ability to use digital tools but also the skills to evaluate and integrate information from various sources [11]. Chu *et al.* [12] studied the development of information searching expertise by 12 postgraduate research students, they have shown that Findings reveal that, in the beginning, students performed more questionable subject searches and fewer keyword searches; later, as they understood more about subject searching and the power of keyword searches. In case of graduate students, Catalano [13] highlighted a study to draw out patterns of information seeking behavior of graduate students. This review revealed that graduate students begin their re-

search on the internet much like any other information seeker, consult their faculty advisors before other people, and use libraries in diverse ways depending on the discipline studied. Motamedi F. *et al.* [14] studied the number of keywords used by the users in the database of SID and Magiran studied this effect on Information Retrieval. Su W. and Sun Y. [15] studied the Information Retrieval behaviour of the library users using the concept of their use of bibliometric contents. Warwick C., *et al.* [16] discuss numerous aspects of students' information work, including information seeking, evaluation of information, and the use of a variety of materials, both digital and in print. It also was important that the study not only concern seeking but a broader range of information use so that we could determine how expertise changed in different aspects of information behavior. There are of significant value, as they show what a less expert searcher may do when overwhelmed by the complexity of a task or search or when under pressure of time. The students did not necessarily complete their information tasks but deployed considerable ingenuity in finding ways to avoid or limit complexity [17]. The study was conducted by means of an online multiple-choice survey, completed during the first few weeks of their course and both undergraduates and postgraduates have problems with basic information literacy skills, particularly those related to the use traditional library tools, such as library. The postgraduate students cannot be assumed to possess all the basic information literacy skills necessary to succeed in their studies. This may prompt librarians and academic teaching staff to devote time to identifying and addressing gaps in their postgraduate student's knowledge. This study suggests that some older students may benefit from increased support from librarians and teaching staff [18]. It gives detailed understanding of the theory, implementation, and evaluation of information retrieval systems in biomedicine and health. It covers basic information retrieval, but with a distinct focus on the biomedical and health domain. Defines where current applications and research systems are heading in digital libraries, and text mining systems [19]. To clarify the conceptual issues of information behaviour research by examining how researchers have characterized the construct of interaction as a component of information seeking and Information Retrieval (IR) [20]. The present study shed new light on tactic transitions in the cross-app interactive environment to explore information search behaviour. The findings of this work provide targeted suggestions for optimizing APP query, browsing and monitoring systems [21]. The study found a satisfactory level of students searching skills. There was no significant difference in the skills based on various variables like gender, age, type of university and level of degree. However, short courses and training workshops had a positive impact on the level of skills. This study will also be helpful for Higher Education Commission (HEC), national digital library for selection of appropriate databases for business students. Hyman, H. *et al.*, [22] deals with the IR problem of balancing recall with precision in electronic document extraction and examine the IR constructs of uncertainty, context and relevance, proposing a new process model for context learning, and introducing a new

information technology (IT) artifact designed to support user driven learning by leveraging explicit knowledge to discover implicit knowledge within a corpus of documents. Yuan X. and Belkin, N. J., [23] suggested an evaluation model and methodology grounded in the nature of information seeking and centered on usefulness. They also believed; this model has broad applicability in current IR research [24]. IR is generally concerned with the searching and retrieving of knowledge-based information from database. It will discuss about the various models and techniques and for IR. It also providing the overview of traditional IR models. Kolomiyets, O. and Moens, M.-F. [25] provides a comprehensive and comparative overview of question answering technology. It presents the question answering task from an IR perspective and emphasizes the importance of retrieval models, i.e., representations of queries and information documents, and retrieval functions which are used for estimating the relevance between a query and an answer candidate. The survey suggests a general question answering architecture that steadily increases the complexity of the representation level of questions and information objects Bouadjenek, M. R. *et al.* [26] reviews different efforts in various domains like IR and social networks build a clearer picture and synthesize the efforts in a structured and meaningful way. To help them structuring the domain, position themselves and, ultimately, help them to propose new contributions or improve existing ones [27]. In the IR system, how to satisfy an information requirement from a query to voluminous document sets. In this regard, the importance is on improving the relevance quality of the results (i.e. retrieved documents). The effectiveness of the IR system depends on the efficacy of the respective adopted IR model and strategy. Understanding of the IR models, strategies and their challenges are important in choosing an appropriate and viable strategy toward the development of effective IR systems for a specific/ predefined role. This paper surveys the basic IR models, challenges and adopted strategies to enhance the IR systems are also highlighted. Gao, J. *et al.*, [28] focused on the tremendous improvements in conversational artificial intelligence (CAI), leading to a plethora of commercial conversational services that allow naturally spoken interactions, increasing the need for more human-centric interactions in IR. It witnessed a resurgent interest in developing modern conversational information retrieval (CIR) systems in research communities and industry. It focusing mainly on neural approaches and new applications developed in the past five years. To provide a thorough and in-depth overview of the general definition of CIR, the components of CIR systems, new applications raised for its conversational aspects, and the (neural) techniques recently developed for it. Liu J. *et al.* [29] present an empirical analysis of publication metadata obtained from 6 top-tier journals and 9 conferences for the first 16 years of the 21st Century, and evaluate the dynamic characteristics of Data Mining and Information Retrieval. Also, find a steady growth both in terms of productivity and impact, evidenced by the unabated number of publications/citations over the period of study. Ahmad, W. and Ali, R., [30] discuss different types of social networking services and user's information shared

on these services. We categorize the content-based information into two categories, namely, textual content-based information and visual content-based information. Then, we discuss the major efforts made for retrieval of these information from different social networks. We also outline a procedure for content-based information retrieval from multiple social networks. Sharma, M. and Morwal, S., [31] studied Cross Language Information Retrieval (CLIR), whose goal is to find relevant information written in a language different from the language of query. CLIR can be used to enhance the ability of users to search and retrieve documents in many languages. Different type of translation techniques can be used to achieve CLIR. This paper describes the work done in CLIR and translation techniques for CLIR [32]. Large collection of unstructured, structured and semi-structured data the diversity of information and language barriers are the serious issues for communication and cultural exchange across the world. Information Retrieval can be classified into different classes such as monolingual information retrieval, cross language information retrieval and multilingual information retrieval (MLIR) etc. In the current scenario, to solve such barriers, CLIR system are nowadays in strong demand. CLIR refers to the information retrieval activities in which the query or documents may appear in different languages. This paper takes an overview of the new application areas of CLIR and reviews the approaches used in the process of CLIR research for query and document translation. Further, based on available literature, a number of challenges and issues in CLIR have been identified and discussed. Ghorab, M. R. *et al.* [33] reports a survey featuring a critical review of PIR systems, with a focus on personalised search. The survey provides an insight into the stages involved in building and evaluating PIR systems, namely: information gathering, information representation, personalisation execution, and system evaluation. The survey proposes a classification of PIR systems into three scopes: individualised systems, community-based systems, and aggregate-level systems. Paper was highlighting challenges and future research directions in the field of PIR. Sharma, A. [34] presents use of Intelligent Information Retrieval (IIR) systems to find out the more relevant information's. In this paper, we present a brief survey of Intelligent Information Retrieval Systems and Intelligent agent models based on semantic web and ontology. The performance of such intelligent systems is calculated in terms of Quality of Search, Efficiency, Effectiveness, and satisfaction of users according to search result. Riloff, E. [35] Natural-language processing methods (such as information extraction), case-based reasoning techniques, and machine learning algorithms are all being applied to information retrieval tasks in the hopes of building more effective retrieval systems. Intelligent information retrieval is an exciting new direction for IR research. Tao, C. *et al.* [36] presents a comprehensive survey of recent advances in response selection for retrieval-based dialogues. In particular, we first formulate the problem of response selection and review state-of-the-art context-response matching models categorized by their architecture. Then we summarize some recent advances on the research of response selection, including incorporation with extra knowledge and

exploration on more effective model learning. It highlights the challenges which are not yet well addressed in this task and present future research directions. Patel, V. *et al.* [37] discuss the importance of information on IR on the web. Also, discuss the importance of various traditional information retrieval models with their pros and cons to enhance the research area for future research work. This paper also briefs on information retrieval, types of data used in the IRS, IRS process, and preprocessing of IR. The article also discusses the literature survey of information retrieval based on the system, traditional models, recent trends, and applications of IR. Current IR models suffer from significant problems of not having accurate information retrieval. This paper focuses on the need for various machine learning techniques, including advanced ML (deep learning), to overcome the exact and actual retrieval of information from a vast heterogeneous collection of databases, including various web-based applications, by improving performance. Fan, Y. *et al.* [38] studies that pre-trained models can learn universal language representations from massive textual data, which are beneficial to the ranking task of IR. Recently, a large number of works, which are dedicated to the application of PTMs in IR, have been introduced to promote the retrieval performance. Considering the rapid progress of this direction, this survey aims to provide a systematic review of pre-training methods in IR. To be specific, we present an overview of PTMs applied in different components of an IR system, including the retrieval component, the re-ranking component, and other components. In addition, we also introduce PTMs specifically designed for IR, and summarize available datasets as well as benchmark leader boards. Moreover, we discuss some open challenges and highlight several promising directions, with the hope of inspiring and facilitating more works on these topics for future research.

Gender differences in digital literacy and information retrieval behaviors have been a topic of interest in several studies. For instance, studies have found that males and females may use different strategies for online searches, with males often being more confident in their search abilities but females showing higher accuracy in evaluating information sources [1] [2]. Additionally, females are more likely to engage in planned and structured search behaviors compared to males, who may adopt a more exploratory approach [39].

The habit of planning searches in advance is another critical factor that can influence search efficiency. Planned searches typically involve setting clear objectives, identifying key search terms, and selecting appropriate databases or search engines before initiating the search. This structured approach can lead to more efficient and effective retrieval of relevant information [5]. However, there is limited empirical evidence on how this habit varies between different demographic groups and its impact on search behaviors.

2. Detailed Methodology

2.1. Survey Design

The survey was designed to capture a comprehensive picture of respondents'

database search behaviors. It included a mix of closed and open-ended questions to gather quantitative and qualitative data. The questions covered various aspects such as planning habits, preferred search methods, frequency of internet use, and demographic information including gender and educational background. The strategy is to get the behaviour pattern of the students depending upon their gender, educational background, social background, economical, and, the time spent on the internet.

2.2. Sample Selection

The survey was distributed to a diverse group of 198 respondents, comprising 140 males and 58 females. Participants were selected to represent a range of educational disciplines, including B.Sc., B.A., and B. Com programs. The selection process aimed to ensure a balanced representation of different schooling backgrounds, including government, public, and government-aided schools. The sample also includes representation from diverse social background.

2.3. Data Collection

Data was collected over a period of two months through online and paper-based questionnaires. Participants were assured of the confidentiality of their responses, and informed consent was obtained prior to their participation. Depending upon the answers to the questionnaires, the data was arranged in excel format and the data was summarized in different aspects. Depending upon the responses in the collected data the following tables are included.

3. Statistical Methods

Descriptive statistics were used to summarize the basic characteristics of the survey data. Cross-tabulations were conducted to explore relationships between variables such as gender, planning habits, and search behaviors. Chi-square tests were performed to assess the significance of these relationships. Additionally, regression analysis was used to examine the impact of planning habits on search efficiency, controlling for other demographic variables.

3.1. Table Analysis

Let's go through each table in the document to provide explanations suitable for a journal article. The tables are based on survey data and examine various questions by gender and the planning habits (A6—"I plan my search well in advance").

Table 1: Basic Percentage for Each Question with A6-Plan in Advance & Male/Female

Description:

This table presents the basic percentages of respondents who plan their searches in advance, segmented by gender (Male/Female).

Explanation:

Total Respondents (198): 140 males and 58 females.

Yes (Plan in Advance): 140 respondents (101 males, 39 females) plan their search well in advance.

No (Do Not Plan in Advance): 58 respondents (39 males, 19 females) do not plan their search in advance.

Male: 72.14% of males plan their searches in advance, while 67.24% do not.

Female: 27.86% of females plan their searches in advance, while 32.76% do not.

Table 1. Basic Percentage for each question with A6-Plan in Advance & Male/Female Gender By (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Gender	Total	Male	Female	Total	Male	Female	Total	Male	Female
Number	198	140	58	140	101	39	58	39	19
Male %age	70.71	100	0	72.14	100	0	67.24	100	0
Female %age	29.29	0	100	27.86	0	100	32.76	0	100

Table 2: User Discipline by A6-Plan in Advance & Gender

Description:

This table shows the disciplines of the respondents and their planning habits, segmented by gender.

Explanation:

Disciplines: Respondents are categorized as BSc., B.A, or B.Com.

BSc.: Very few respondents from the BSc. discipline plan their searches in advance (51% overall, mostly male).

B.A.: A high percentage of B.A. respondents plan their searches well in advance (98.99%), with a balance between males and females.

B.Com: Only a minimal percentage from B.Com plan their searches in advance.

Table 2. User discipline by (A6—I plan my search in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Discipline	Total	Male	Female	Total	Male	Female	Total	Male	Female
Number	198	140	58	140	101	39	58	39	19
BSc. %	0.51	0.71	0.00	0.00	0.00	0.00	1.72	2.56	0.00
B.A %	98.99	98.57	100.00	99.29	99.01	100.00	98.28	97.44	100.00
B. Com %	0.51	0.71	0.00	0.71	0.99	0.00	0.00	0.00	0.00

Table 3: Schooling Background by A6-Plan in Advance & Gender

Description:

This table details the schooling backgrounds of respondents who plan their

searches in advance, segmented by gender.

Explanation:

School Types: Government School, Public School, Government-Aided School, Others.

Government School: 34.85% of respondents from government schools plan their searches in advance, with a higher percentage among males.

Public School: 49.49% from public schools plan their searches, with a higher percentage among females.

Government-Aided: 5.56% plan in advance, with similar percentages across genders.

Others: 10.10% plan in advance, with more males planning compared to females.

Table 3. Schooling from by (A6—I plan my search in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Type of School	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Govt. %	34.85	37.14	29.31	33.57	35.64	28.21	37.93	41.03	31.58
Public %	49.49	45.00	60.34	50.00	45.54	61.54	48.28	43.59	57.89
Govt. aided %	5.56	5.71	5.17	4.29	3.96	5.13	8.62	10.25	5.26
Others %	10.10	12.14	5.17	12.14	14.85	5.13	5.17	5.13	5.26

Table 4: Schooling Place by A6-Plan in Advance & Gender

Description:

This table looks at the geographical schooling background of respondents who plan their searches in advance, segmented by gender.

Explanation:

Delhi NCR: 39.80% of respondents from Delhi NCR plan their searches in advance, with a slightly higher percentage among females.

Other States: 60.20% plan their searches in advance, with more males planning compared to females.

Table 4. Schooling place by (A6—I plan my search in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
School Location	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Delhi NCR %	39.80	36.96	46.55	38.85	37.00	43.59	42.11	36.84	52.63
Other State %	60.20	63.04	53.45	61.15	63.00	56.41	57.89	63.16	47.37

Table 5: Internet Usage for Information Seeking by A6-Plan in Advance & Gender

Description:

This table examines how often respondents use the internet for information seeking, segmented by their planning habits and gender.

Explanation:

Always: 7.07% of respondents always plan their searches in advance, with a higher percentage among females.

Most of the Time: 41.92% plan most of the time, with similar percentages across genders.

Sometimes: 45.96% plan sometimes, with more females planning compared to males.

Rarely: 5.05% plan rarely, with more males planning compared to females.

Table 5. A1-While using internet, spend most of the time for information seeking by (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Information Seeking	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Rarely %	5.05	6.43	1.72	5.71	6.93	2.56	3.45	5.13	0.00
Sometimes %	45.96	42.86	53.45	42.14	40.59	46.15	55.17	48.72	68.42
Most of the times %	41.92	44.29	36.21	45.00	45.54	43.59	34.48	41.03	21.05
Always %	7.07	6.43	8.62	7.14	6.93	7.69	6.90	5.13	10.53

Table 6: Willingness to Pay for Information Retrieval by A6-Plan in Advance & Gender

Description:

This table assesses the willingness of respondents to pay for information retrieval, segmented by their planning habits and gender.

Explanation:

Yes: 61.62% are willing to pay for information retrieval, with a higher percentage among females who plan in advance.

No: 38.38% are not willing to pay, with a higher percentage among males who plan in advance.

Table 7: Awareness of Query Phrasing by A6-Plan in Advance & Gender
Description:

This table explores how well respondents understand how to phrase queries for information seeking, segmented by their planning habits and gender.

Table 6. A2—I do not mind to pay for information retrieval by (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Willing to Pay	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	61.62	58.57	68.97	64.29	59.41	76.92	55.17	56.41	52.63
No %	38.38	41.43	31.03	35.71	40.59	23.08	44.83	43.59	47.37

Table 7. A3—I am well aware how to phrase the queries while seeking information by (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Awareness	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	87.37	83.57	96.55	90.00	87.13	97.44	81.03	74.36	94.74
No %	12.63	16.43	3.45	10.00	12.87	2.56	18.97	25.64	5.26

Explanation:

Yes: 87.37% are aware of how to phrase queries, with a higher percentage among females who plan in advance.

No: 12.63% are not aware, with a higher percentage among males who do not plan in advance.

Table 8: Seeking Information for Classroom Problem Solving by A6-Plan in Advance & Gender

Description:

This table examines the tendency of respondents to seek information for classroom problem-solving, segmented by their planning habits and gender.

Explanation:

Yes: 88.38% seek information for classroom problem-solving, with a higher percentage among females who plan in advance.

No: 11.62% do not seek information for classroom problem-solving, with a higher percentage among males who do not plan in advance.

Table 8. A4—I seek information regarding my classroom problem solving.by (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Problem Solving	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	88.38	86.43	93.10	88.57	88.12	89.74	87.93	82.05	100.00
No %	11.62	13.57	6.90	11.43	11.88	10.26	12.07	17.95	0.00

Table 9: Order of Internet Usage Related to Classroom Teaching by A6-Plan in Advance & Gender

Description:

This table explores how respondents order their internet usage for classroom teaching or study-related activities, segmented by their planning habits and gender.

Explanation:

Yes: 62.63% use the internet in an ordered manner related to their studies, with a higher percentage among females who plan in advance.

No: 37.37% do not, with a higher percentage among males who do not plan in advance.

Table 9. A5—The order in which I use internet for information always related to classroom teaching, project or related to my study by (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Usage of Internet	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	62.63	61.43	65.52	66.43	66.34	66.67	53.45	48.72	63.16
No %	37.37	38.57	34.48	33.57	33.66	33.33	46.55	51.28	36.84

Table 10: Preference for Leading University Websites by A6-Plan in Advance & Gender

Description:

This table investigates the preference of respondents to seek information from leading university websites, segmented by their planning habits and gender.

Explanation:

Yes: 74.24% prefer leading university websites, with a higher percentage among females who plan in advance.

No: 25.76% do not prefer, with a higher percentage among males who do not plan in advance.

Table 10. A7—I prefer seeking information from the websites of leading universities BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Seeking information from website	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	74.24	72.14	79.31	77.14	75.25	82.05	67.24	64.10	73.68
No %	25.76	27.86	20.69	22.86	24.75	17.95	32.76	35.90	26.32

Table 11: Seeking Information by Broader Categories by A6-Plan in Advance & Gender

Description:

This table looks at whether respondents seek information by broader categories, segmented by their planning habits and gender.

Explanation:

Yes: 73.74% seek information by broader categories, with a higher percentage among females who plan in advance.

No: 26.26% do not seek information by broader categories, with a higher percentage among males who do not plan in advance.

Table 11. A8—In information seeking I seek information by broader categories. BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Broader categories	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	73.74	69.29	84.48	75.00	72.28	82.05	70.69	61.54	89.47
No %	26.26	30.71	15.52	25.00	27.72	17.95	29.31	38.46	10.53

Table 12: Access to the Internet by A6-Plan in Advance & Gender

Description:

This table examines where respondents access the internet from, segmented by their planning habits and gender.

Explanation:

At Home: 42.93% access the internet from home, with similar percentages across genders.

Others: 57.07% access from other places, with a slightly higher percentage among males.

Table 12. B1—Access to internet for you is: BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Access to Internet at	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
homes %	42.93	42.86	43.10	42.14	41.58	43.59	44.83	46.15	42.11
Others %	57.07	57.14	56.90	57.86	58.42	56.41	55.17	53.85	57.89

Table 13: Awareness of Internet Speed Impact on Retrieval by A6-Plan in

Advance & Gender

Description:

This table assesses respondents' awareness that internet speed affects information retrieval, segmented by their planning habits and gender.

Explanation:

At Homes: 37.37% are aware, with more males being aware.

Others: 62.63% are aware, with more females being aware.

Table 13. B2—Do you know that the information retrieval depends on the speed of the internet? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Speed of internet	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	37.37	38.57	34.48	43.57	42.57	46.15	22.41	28.21	10.53
No %	62.63	61.43	65.52	56.43	57.43	53.85	77.59	71.79	89.47

Table 14: Frequency of Printing Retrieved Information by A6-Plan in Advance & Gender

Description:

This table explores how often respondents print retrieved information, segmented by their planning habits and gender.

Explanation:

Very Often: 82.83% print very often, with higher percentages among females who plan in advance.

Sometimes: 17.17% print sometimes, with higher percentages among males who do not plan in advance.

Table 14. B3—Do you get print out of the information retrieved? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Print Out	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Very often %	82.83	82.14	84.48	84.29	83.17	87.18	79.31	79.49	78.95
Sometimes %	17.17	17.86	15.52	15.71	16.83	12.82	20.69	20.51	21.05

Table 15: Method of Searching Relevant Information by A6-Plan in Advance & Gender

Description:

This table investigates how respondents search for relevant information, segmented by their planning habits and gender.

Explanation:

Via Library Portal: 86.87% use library portals, with higher percentages among females.

Via Web Search Engines: 10.61% use web search engines, with higher percentages among males.

Online Catalogues: 2.53% use online catalogues, with slightly more males using this method.

Table 15. B4—How do you search relevant information on internet? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Search relevant information	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Via library portal %	86.87	83.57	94.83	87.86	85.15	94.87	84.48	79.49	94.74
Via web search engines %	10.61	12.86	5.17	8.57	9.90	5.13	15.52	20.51	5.26
Online catalogues %	2.53	3.57	0.00	3.57	4.95	0.00	0.00	0.00	0.00

Table 16: Preferred Search Engines by A6-Plan in Advance & Gender

Description:

This table shows which search engines respondents often use, segmented by their planning habits and gender.

Explanation:

Google: 85.86% use Google, with slightly higher percentages among females.

Yahoo: 13.64% use Yahoo, with slightly higher percentages among males.

AOL: 0.51% use AOL, with slightly more females using this search engine.

Table 16. B5—Which search engines you often use? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Mostly used search engines	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Google %	85.86	84.29	89.66	86.43	85.15	89.74	84.48	82.05	89.47
Yahoo %	13.64	15.71	8.62	12.86	14.85	7.69	15.52	17.95	10.53
AOL %	0.51	0.00	1.72	0.71	0.00	2.56	0.00	0.00	0.00

Table 17: Preferred Mode of Information Retrieval by A6-Plan in Advance & Gender

Description:

This table examines respondents' preferred mode of information retrieval, segmented by their planning habits and gender.

Explanation:

Through Books/Printed Material: 24.75% prefer printed material, with similar percentages across genders.

Self-Archiving on Internet: 22.22% prefer self-archiving, with higher percentages among males.

Through Prints: 46.46% prefer through prints, with higher percentages among females.

Through CDs/Flash Drives: 6.57% prefer through digital media, with slightly higher percentages among males.

Table 17. B6—Which mode of information retrieval suits you? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Information retrieval mode	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Through books or printed material available %	24.75	24.29	25.86	25.00	26.73	20.51	24.14	17.95	36.84
Self-archiving on internet %	22.22	23.57	18.97	27.86	28.71	25.64	8.62	10.26	5.26
Through prints%	46.46	42.86	55.17	40.71	35.64	53.85	60.34	61.54	57.89
Others %	6.57	9.29	0.00	6.43	8.91	0.00	6.90	10.26	0.00

Table 18 examines respondents' preferred number of webpages required to consider their search is enough for any topic, segmented by their gender. About 60% of the participants, across the gender, need to search more than 20 webpages to complete their search of any topic yet 80% of them think that internet search is not of great help as examined by Table 19. Thus, as per the data of Table 20, more than 82% thinks that they need to discuss this problem of internet search with their friends.

Table 18. B7—If you are seeking information on particular topic, usually going through how many web pages you feel that your search is almost complete? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Web pages for search	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
More than 20	62.63	60.00	68.97	67.14	63.37	76.92	51.72	51.28	52.63
10 - 19	36.87	40.00	29.31	32.14	36.63	20.51	48.28	48.72	47.37
6 - 10	0.51	0.00	1.72	0.71	0.00	2.56	0.00	0.00	0.00

Table 19. B8—How often you feel that internet search has not been of great help? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Internet search has not been of great help	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Quite often %	79.80	79.29	81.03	80.00	78.22	84.62	79.31	82.05	73.68
Sometimes %	20.20	20.71	18.97	20.00	21.78	15.38	20.69	17.95	26.32

Table 20. B9—Do you discuss your problems of information seeking with your friend? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Information seeking with friend	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	83.84	82.14	87.93	83.57	81.19	89.74	84.48	84.62	84.21
No %	16.16	17.86	12.07	16.43	18.81	10.26	15.52	15.38	15.79

Table 21 explains that more than 77% students, across gender, used the YouTube channel to get help in their study/lectures. They also prefer encyclopedia more than 80% over dictionary, as the dictionary only gives the meaning of a word and while encyclopedia also defines the word, as evident from the Table 22. Table 23 and Table 24 explains that e-books are freely available and more than 81% students download the e-books available for later reference and to study. But that is not of much useful exercise, as they hardly refer those books later, as evident in

Table 25, about 81% students think those e-books are of not as much helpful, across the gender. Also, in Table 26, more than 90% students agree that the standard books of famous authors are not available on internet as e-books or those books are not freely available.

Table 21. B11—Do you use YouTube for your lectures for your study? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
YouTube for study	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	77.78	77.14	79.31	82.14	81.19	84.62	67.24	66.67	68.42
No %	22.22	22.86	20.69	17.86	18.81	15.38	32.76	33.33	31.58

Table 22. C1 -In my information seeking, following document types helped me most. BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Document type	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Encyclopedia %	81.82	82.14	81.03	88.57	88.12	89.74	65.52	66.67	63.16
Dictionary %	17.17	17.14	17.24	10.71	10.89	10.26	32.76	33.33	31.58
Others%	1.01	0.71	1.72	0.71	0.99	0.00	1.72	0.00	5.26

Table 23. C2 – Most of the times, the E-books were freely available. BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Free E-books	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	71.72	71.43	72.41	72.86	70.30	79.49	68.97	74.36	57.89
No %	28.28	28.57	27.59	27.14	29.70	20.51	31.03	25.64	42.11

Table 24. C3—If yes, did you download and save it for yourself? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
E-books download	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	83.84	81.43	89.66	85.00	83.17	89.74	81.03	76.92	89.47
No %	16.16	18.57	10.34	15.00	16.83	10.26	18.97	23.08	10.53

Table 25. C4—Did you find E-books useful for study? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
E-books useful	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	17.17	15.71	20.69	15.00	13.86	17.95	22.41	20.51	26.32
No %	82.83	84.29	79.31	85.00	86.14	82.05	77.59	79.49	73.68

Table 26. C5—Did you ever get standard textbook by famous authors in your area of interest on E-world? BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Famous authors books on e-world	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	8.08	9.29	5.17	9.29	10.89	5.13	5.17	5.13	5.26
No %	91.92	90.71	94.83	90.71	89.11	94.87	94.83	94.87	94.74

Table 27: Need of good probabilistic combination of different types of phrases or term selection

Description:

This table examines respondents' use of probabilistic combination of different types of phrases or term selection preferred mode of information retrieval, segmented by their planning habits and gender.

Explanation:

More than 96% male and female, both agree that the probabilistic combination of different types of phrases or term selection is effective for the good and effective search of e-content on the internet.

Table 27. C6—Are you aware that very good search results possible with probabilistic combination of different types of phrases or term selection. BY (A6—I plan my search well in advance. > Gender).

	A6—I plan my search well in advance.								
Response	Total			Yes			No		
Search result	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	198	140	58	140	101	39	58	39	19
Yes %	96.46	96.43	96.55	97.86	98.02	97.44	93.10	92.31	94.74
No %	3.54	3.57	3.45	2.14	1.98	2.56	6.90	7.69	5.26

These explanations should provide a comprehensive understanding of each table for a journal article. If you need more specific details or additional context for any table, please let me know!

3.2. Data Analysis

The data analysis involved calculating the basic percentages for each question and comparing these percentages across different segments (e.g., by gender, by planning habits). Cross-tabulations were used to identify patterns and relationships between variables. For example, the analysis examined the percentage of respondents who plan their searches in advance and how this varies by gender and discipline.

Additionally, the study explored the impact of planning habits on preferred methods of information retrieval. This involved analyzing responses to questions about the use of library portals, web search engines, and other information retrieval methods. The analysis also looked at how internet usage patterns and schooling backgrounds influence search behaviors.

4. Results and Discussion

The findings of this study provide several important insights into database search behaviors and their implications for digital literacy programs. The significant gender differences observed in planning habits and search preferences align with previous research (Jackson *et al.*, 2001; Ayyanar, K., 2019), suggesting that females are more likely to engage in structured and planned search behaviors. This tendency may be influenced by broader social and educational factors that encourage thoroughness and accuracy in information retrieval.

The preference for different search methods also highlights important considerations for the design of digital literacy programs. Females' inclination towards using library portals and leading university websites suggests a higher reliance on authoritative and curated sources. In contrast, males' preference for web search engines indicates a more exploratory approach, which may benefit from additional training on evaluating the credibility of online sources.

The impact of planning on search efficiency is particularly noteworthy. Respondents who reported planning their searches in advance demonstrated higher efficiency and satisfaction with their search outcomes. This finding supports Bates' (1979) concept of search tactics and underscores the importance of teaching structured search strategies as part of digital literacy curricula.

Educational institutions and libraries can leverage these insights to develop targeted interventions that address the specific needs of different user groups. For instance, workshops on effective search planning and the use of library resources can be tailored to female students, while sessions on critical evaluation of web-based information can benefit male students.

The study's findings also have broader implications for the development of user-centric information retrieval systems. By understanding the diverse search

behaviors and preferences of users, developers can design interfaces and tools that accommodate different strategies and enhance overall search efficiency.

5. Conclusion

This study provides a comprehensive analysis of database search behaviors based on gender and planning habits. The findings highlight the importance of planning in effective information retrieval and reveal significant gender differences in search behaviors. By understanding these patterns, educational institutions and libraries can optimize their resources and services to better meet the needs of their users. Future research could further explore the underlying reasons for these behaviors and how they impact information-seeking efficiency and effectiveness.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Hargittai, E. (2001) Second-Level Digital Divide: Mapping Differences in People's Online Skills. arXiv: cs/0109068. https://doi.org/10.48550/arXiv.cs/0109068

[2] van Deursen, A.J. and van Dijk, J.A. (2013) The Digital Divide Shifts to Differences in Usage. *New Media & Society*, **16**, 507-526. https://doi.org/10.1177/1461444813487959

[3] Jackson, L.A., Ervin, K.S., Gardner, P.D. and Schmitt, N. (2001) Gender and the Internet: Women Communicating and Men Searching. *Sex Roles*, **44**, 363-379. https://doi.org/10.1023/a:1010937901821

[4] Ayyanar, K. and Thirunavukkarasu, A. (2019) Information Literacy Skills of Alagappa Chettiar Government College of Engineering & Technology Students in Karaikudi, Tamilnadu: A Case Study. *Library Philosophy and Practice* (*e-Journal*), Article No. 2640.

[5] Bates, M.J. (1979) Information Search Tactics. *Journal of the American Society for Information Science*, **30**, 205-214. https://doi.org/10.1002/asi.4630300406

[6] Bilal, D. (2000) Children's Use of the Yahooligans! Web Search Engine: I. Cognitive, Physical, and Affective Behaviors on Fact-Based Search Tasks. *Journal of the American Society for Information Science*, **51**, 646-665. https://doi.org/10.1002/(sici)1097-4571(2000)51:7<646::aid-asi7>3.0.co;2-a

[7] Fidel, R., Davies, R.K., Douglass, M.H., Holder, J.K., Hopkins, C.J., Kushner, E.J., *et al.* (1999) A Visit to the Information Mall: Web Searching Behavior of High School Students. *Journal of the American Society for Information Science*, **50**, 24-37. https://doi.org/10.1002/(sici)1097-4571(1999)50:1<24::aid-asi5>3.0.co;2-w

[8] Head, A.J. and Eisenberg, M.B. (2011) How College Students Use the Web to Conduct Everyday Life Research. *First Monday*, **16**. https://doi.org/10.5210/fm.v16i4.3484

[9] Leeder, C. and Shah, C. (2016) Practicing Critical Evaluation of Online Sources Improves Student Search Behavior. *The Journal of Academic Librarianship*, **42**, 459-468. https://doi.org/10.1016/j.acalib.2016.04.001

[10] Tsai, M., Liang, J., Hou, H. and Tsai, C. (2012) University Students' Online Information Searching Strategies in Different Search Contexts. *Australasian Journal of*

Educational Technology, **28**, 881-895. https://doi.org/10.14742/ajet.822

[11] Eshet, Y. (2004) Digital Literacy: A Conceptual Framework for Survival Skills in the Digital Era. *Journal of Educational Multimedia and Hypermedia*, **13**, 93-106.

[12] Chu, S.K. and Law, N. (2007) Development of Information Search Expertise: Postgraduates' Knowledge of Searching Skills. *Portal: Libraries and the Academy*, **7**, 295-316. https://doi.org/10.1353/pla.2007.0028

[13] Catalano, A. (2013) Patterns of Graduate Students' Information Seeking Behavior: A Meta-synthesis of the Literature. *Journal of Documentation*, **69**, 243-274. https://doi.org/10.1108/00220411311300066

[14] Motamedi, F., Khanjani, N., Talebian, A., Behzadifard, S. and Bakhtyari, F. (2019) Rate of Agreement between Database Users' and Authors' Keywords in SID and Magiran Databases and Its Effect on Information Retrieval. *Open Access Library Journal*, **6**, 1-16. https://doi.org/10.4236/oalib.1105330

[15] Su, W. and Sun, Y. (2020) Research on the Library Users' Information Retrieval Behaviour: From a Bibliometric Perspective. *Open Access Library Journal*, **7**, 1-23. https://doi.org/10.4236/oalib.1106460

[16] Warwick, C., Rimmer, J., Blandford, A., Gow, J. and Buchanan, G. (2009) Cognitive Economy and Satisficing in Information Seeking: A Longitudinal Study of Undergraduate Information Behavior. *Journal of the American Society for Information Science and Technology*, **60**, 2402-2415. https://doi.org/10.1002/asi.21179

[17] Conway, K. (2011) How Prepared Are Students for Postgraduate Study? A Comparison of the Information Literacy Skills of Commencing Undergraduate and Postgraduate Information Studies Students at Curtin University. *Australian Academic & Research Libraries*, **42**, 121-135. https://doi.org/10.1080/00048623.2011.10722218

[18] Hersh, W. (2020) Information Retrieval: A Biomedical and Health Perspective. Springer.

[19] Savolainen, R. (2018) Pioneering Models for Information Interaction in the Context of Information Seeking and Retrieval. *Journal of Documentation*, **74**, 966-986. https://doi.org/10.1108/jd-11-2017-0154

[20] Chen, J., Chen, H. and Li, Y. (2023) Transitions in Daily Search Tactics: During the Cross-App Interaction Search Process. *Information Technology & People*, **37**, 1379-1402. https://doi.org/10.1108/itp-10-2022-0814

[21] Tariq, M., Rehman, S.U., Mahmood, K. and Mustafa, G. (2018) Online Information Searching Skills of Business Students. *Pakistan Journal of Information Management and Libraries*, **20**, 39-59. https://doi.org/10.47657/2018201221

[22] Hyman, H., Sincich, T., Will, R., Agrawal, M., Padmanabhan, B. and Fridy, W. (2015) A Process Model for Information Retrieval Context Learning and Knowledge Discovery. *Artificial Intelligence and Law*, **23**, 103-132. https://doi.org/10.1007/s10506-015-9165-y

[23] Yuan, X. and Belkin, N.J. (2010) Evaluating an Integrated System Supporting Multiple Information-Seeking Strategies. *Journal of the American Society for Information Science and Technology*, **61**, 1987-2010. https://doi.org/10.1002/asi.21352

[24] James, N.T. and Kannan, R. (2017) A Survey on Information Retrieval Models, Techniques and Applications. *International Journal of Advanced Research in Computer Science and Software Engineering*, **7**, 16-19. https://doi.org/10.23956/ijarcsse.v7i7.90

[25] Kolomiyets, O. and Moens, M. (2011) A Survey on Question Answering Technology from an Information Retrieval Perspective. *Information Sciences*, **181**, 5412-5434. https://doi.org/10.1016/j.ins.2011.07.047

[26] Bouadjenek, M.R., Hacid, H. and Bouzeghoub, M. (2016) Social Networks and Information Retrieval, How Are They Converging? A Survey, a Taxonomy and an Analysis of Social Information Retrieval Approaches and Platforms. *Information Systems*, **56**, 1-18. https://doi.org/10.1016/j.is.2015.07.008

[27] Ruambo, F.A. and Nicholaus, M.R. (2019). Towards Enhancing Information Retrieval Systems: A Brief Survey of Strategies and Challenges. 2019 11*th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops* (*ICUMT*), Dublin, 28-30 October 2019, 1-8. https://doi.org/10.1109/icumt48472.2019.8970954

[28] Gao, J., Xiong, C. and Bennett, P. (2020). Recent Advances in Conversational Information Retrieval. *Proceedings of the* 43*rd International ACM SIGIR Conference on Research and Development in Information Retrieval*, 25-30 July 2020, 2421-2424. https://doi.org/10.1145/3397271.3401418

[29] Liu, J., Kong, X., Zhou, X., Wang, L., Zhang, D., Lee, I., *et al.* (2019) Data Mining and Information Retrieval in the 21st Century: A Bibliographic Review. *Computer Science Review*, **34**, Article ID: 100193. https://doi.org/10.1016/j.cosrev.2019.100193

[30] Ahmad, W. and Ali, R. (2016). Information Retrieval from Social Networks: A Survey. 2016 3*rd International Conference on Recent Advances in Information Technology* (*RAIT*), Dhanbad, 3-5 March 2016, 631-635. https://doi.org/10.1109/rait.2016.7507972

[31] Sharma, M. and Morwal, S. (2015) A Survey on Cross Language Information Retrieval. *International Journal of Advanced Research in Computer and Communication Engineering*, **4**, 384-387. https://doi.org/10.17148/ijarcce.2015.4287

[32] Dwivedi, S.K. and Chandra, G. (2016) A Survey on Cross Language Information Retrieval. *International Journal on Cybernetics & Informatics*, **5**, 127-142. https://doi.org/10.5121/ijci.2016.5113

[33] Ghorab, M.R., Zhou, D., O'Connor, A. and Wade, V. (2012) Personalised Information Retrieval: Survey and Classification. *User Modeling and User-Adapted Interaction*, **23**, 381-443. https://doi.org/10.1007/s11257-012-9124-1

[34] Sharma, A. (2013) Intelligent Information Retrieval System: A Survey. *Advance in Electronic and Electric Engineering*, **3**, 2231-1297.

[35] Riloff, E. and Hollaar, L. (1996) Text Databases and Information Retrieval. *ACM Computing Surveys*, **28**, 133-135. https://doi.org/10.1145/234313.234371

[36] Tao, C., Feng, J., Yan, R., Wu, W. and Jiang, D. (2021). A Survey on Response Selection for Retrieval-Based Dialogues. *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence*, Montreal, 19-27 August 2021, 4619-4626. https://doi.org/10.24963/ijcai.2021/627

[37] Patel, V., Hiran, D. and Dangarwala, K. (2024) Recent Trends of Information Retrieval System: Review Based on IR Models and Applications. *Lecture Notes in Networks and Systems*, **873**, 619-629. https://doi.org/10.1007/978-981-99-9442-7_51

[38] Fan, Y., Xie, X., Cai, Y., Chen, J., Ma, X., Li, X., *et al.* (2022) Pre-Training Methods in Information Retrieval. *Foundations and Trends® in Information Retrieval*, **16**, 178-317. https://doi.org/10.1561/1500000100

[39] Bawden, D. and Robinson, L. (2008) The Dark Side of Information: Overload, Anxiety and Other Paradoxes and Pathologies. *Journal of Information Science*, **35**, 180-191. https://doi.org/10.1177/0165551508095781