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CLICK, SEARCH, AND LEARN: INVESTIGATING THE ONLINE INFORMATION-SEEKING BEHAVIOR OF STUDENTS AT UNIVERSITY OF PESHAWAR

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Abstract

This study investigates the online information-seeking behavior (OISB) of undergraduate students (final-year) at the University of Peshawar during the academic session 2024–2025. A quantitative research design was employed, using a structured questionnaire distributed to 523 students, with 315 valid responses analyzed, yielding a response rate of 60.2%. Stratified random sampling was applied by treating each faculty as a stratum and selecting two departments per faculty using the lottery method, ensuring balanced departmental representation. Descriptive statistics were used to assess behaviors. The most frequently used sources included special websites (M = 3.89, SD = 1.33), online course platforms (M = 3.83, SD = 1.29), and e-journals (M = 3.77, SD = 1.34). In contrast, Wikipedia (M = 2.69, SD = 1.59), Google Search (M = 2.18, SD = 1.56), and social media platforms (M = 1.64, SD = 1.26) were the least used. The top ranked purposes of using online information sources were finding quick facts (M = 3.87, SD = 1.17), completing assignments (M = 3.65, SD = 1.29), and learning new skills (M = 3.65, SD = 1.44). Preferred formats of online information sources included PDFs (M = 3.61, SD = 1.40), social media posts (M = 3.54, SD = 1.32), and recorded lectures (M = 3.40, SD = 1.07) available online. Major challenges faced were copyright issues (M = 3.37, SD = 1.25), lack of resources (M = 3.25, SD = 0.97), and load-shedding (M = 3.16, SD = 1.13). The findings underscore the need for enhanced digital literacy, infrastructure upgrades, and equitable access to academic databases to optimize students' academic and research engagement.

Keywords: Online information-seeking behavior, undergraduate students, digital literacy, online resources, information challenges, and academic use.

Background of the Study

In today's digital age, the ability to effectively seek and utilize online information is a vital skill for undergraduate university students. With the abundance of scholarly articles, academic databases, and digital content, students have greater opportunities to enhance their learning experiences and educational achievements. However, the strategies and challenges involved in online information-seeking behaviors vary widely and may significantly influence students' academic performance (Savolainen, 2016; Basch et. al., 2018).

This study focuses on final-year undergraduate students at the University of Peshawar, specifically those in the 7th and 8th semesters. These students are in a crucial phase of their academic journey, during which they engage more intensively with online information due to thesis work, research projects, and preparation for postgraduate studies. As such, they are likely to demonstrate more refined and purposeful online information-seeking behaviors (Hjørland, 2013; McGowan, 2019).

Several studies have highlighted factors that influence how students interact with digital information. Digital literacy, as emphasized by Xie et al. (2023), plays a key role in enabling students to efficiently locate and evaluate online resources. Similarly, Park and Lee (2024) found that students prioritize credibility, relevance, and timeliness when selecting online content, although the growing issue of misinformation complicates this process. Alhassan and Okoro (2024) further argue that students with strong digital confidence are more adept at discerning the quality of information, underscoring the value of information literacy and self-efficacy.

Information-Seeking Behavior (ISB) is a critical area of research within Library and Information Science. It involves how individuals

identify their information needs, locate resources, and use information effectively (Savolainen, 2007; Wilson, 2000). A clear understanding of ISB enables educational institutions to support students in finding the right information at the right time, which is essential for academic success (Zulkifli et. al., 2019).

Online information-seeking strategies include various steps such as formulating search queries, navigating digital platforms, evaluating sources, and refining search results. These strategies are shaped by students' motivations, skills, and external academic demands (Savolainen, 2016; Kinley et. al., 2014). Research suggests that students seek information to complete assignments, engage in discussions, conduct research, and prepare for exams (Al-Muomen & Aldousari, 2022; McGowan, 2019). However, they also face challenges like information overload, difficulty in assessing credibility, and limited access to high-quality sources (Basch et. al., 2018; Owolabi & Okocha, 2020).

Academic performance, typically measured by CGPA, test scores, assignment submissions, and class participation, reflects the extent to which students meet educational goals (McCoach, 2002; Buzdar et. al., 2016). The ability to effectively seek and utilize online information can play a significant role in this performance.

Given these considerations, this study aims to investigate the online information-seeking behavior of undergraduate students at the University of Peshawar. By exploring the sources used, purposes, preferred formats, and encountered challenges, the research will contribute to a deeper understanding of how students interact with online information.

Statement of the Problem

Despite the widespread availability of digital information, many undergraduate students struggle to effectively locate, evaluate, and

apply online sources in their academic work (Kinley et. al., 2014; Xie et. al., 2023). Final-year students at the University of Peshawar, in particular, face increased academic pressure due to advanced coursework and research projects, necessitating efficient and critical use of online information (Haas, 2003; Al-Muomen & Aldousari, 2022). However, limited digital literacy, difficulties in assessing source credibility, and challenges in navigating vast online content may hinder their academic performance (Park & Lee, 2024; Alhassan & Okoro, 2024). There is a need to understand the specific behaviors, preferences, and obstacles faced by these students in their online information-seeking process. This study seeks to address this gap by examining the types of online sources used, the purposes behind information-seeking, the preferred formats, and the challenges encountered by final-year undergraduate students at the University of Peshawar.

Research Questions

The following are the research questions:

1. What types of online information sources are commonly used by undergraduate students?
2. For what purposes do undergraduate students engage in online information seeking?
3. What are the most preferred formats of online information accessed by undergraduate students?
4. What challenges do undergraduate students encounter while seeking information online?

Literature Review

Understanding Online Information-Seeking Behavior

Online Information-Seeking Behavior (OISB) encompasses the processes by which individuals actively search for and utilize digital sources to fulfill their information needs. For undergraduate students, especially in a rapidly evolving academic landscape, this

behavior reflects a dynamic interaction between personal motivation, digital literacy, and institutional support (Sheeja, 2010; Given & Case, 2016). The behavior typically arises when students face gaps in their existing knowledge, prompting them to consult the internet, academic databases, peers, or institutional resources (Koh et. al., 2015). This form of engagement involves strategies ranging from keyword searches to collaborative learning, all shaped by the accessibility and perceived quality of online content.

Academic libraries and institutions have increasingly adopted ICT tools and digital databases to support this shift in information behavior (Esew et. al., 2014). Yet, despite these advancements, research consistently highlights disparities in students' ability to discern credible from non-credible sources, often favoring convenience over credibility (Rosario et. al., 2020; Daei e.t al., 2020). As Google and other search engines dominate initial research strategies, libraries face the challenge of remaining relevant by enhancing digital literacy and promoting academic search platforms (Zakar et. al., 2021).

Patterns and Influences on Undergraduate OISB

Several studies have explored how demographic, psychological, and institutional factors influence OISB. Alazemi (2023) and Jalali et al. (2020) emphasized that although students have access to high-quality academic databases, over 70% rely on Google as their primary tool. Such reliance is often linked to limited training in using academic databases and a general preference for quick access over depth and accuracy (Guay & Reynolds, 2018).

A significant barrier to effective online information-seeking is students' limited ability to evaluate source credibility. Dadaczynski et al. (2020) and Weber et al. (2019) found that while students perceive web-based resources as useful, they rarely assess the authenticity of the information. This lack of critical evaluation

skills, compounded by infrastructural limitations such as slow internet and limited ICT access (Humbhi et. al., 2022; Khan & Khan, 2020), hampers effective academic research. In the Pakistani context, inadequate training and poor ICT infrastructure further complicate students' ability to effectively engage in information-seeking (Marouf & Anwar, 2010; Ahmed et. al., 2019).

Moreover, psychological and behavioral attributes such as resilience, IT proficiency, and reading habits have been shown to positively correlate with academic performance and efficient information-seeking strategies (Miraj et. al., 2021). Gender, educational background, and subject specialization also influence students' preferences for information sources, with a notable preference for digital tools and social media among certain academic disciplines (Horsfall et. al., 2020).

Challenges in Online Information Seeking

Despite the growing digital infrastructure, several persistent challenges hinder the online information-seeking behavior of undergraduates. Poor internet connectivity, inadequate computer facilities, limited awareness of OPAC systems, and lack of information literacy training are recurrent themes across studies (Humbhi et. al., 2022; Ganie & Rather, 2014). Moreover, many students report feeling overwhelmed by information overload and face difficulties formulating effective search queries (Chowdhury et. al., 2011).

In addition to infrastructural and technical barriers, personal traits also play a role. Ahmed et al. (2019) demonstrated how personality types such as conscientiousness and openness significantly impact the quality and approach to information seeking. Extraverted and neurotic students, conversely, tended to exhibit fewer effective behaviors.

Furthermore, cultural and institutional factors, such as faculty

support, availability of training programs, and English language proficiency, also affect students' confidence and competence in information seeking (Azadeh & Ghasemi, 2015; Al-Muomen et. al., 2012). Limited exposure to scholarly databases and a tendency to rely on lecture notes and general web searches often result in suboptimal academic research outputs (Warwick et al., 2009; Oyadeyi, 2014).

Theoretical and Empirical Models of ISB

Scholars have proposed various models to understand the complexity of information-seeking behavior. Potnis (2015) provides a foundational understanding of how psychological, social, and environmental factors influence the search process. Dervin's Sense-Making Theory and Kuhlthau's Information Search Process offer insight into the emotional and cognitive journey students experience during their searches. These models highlight that OISB is not a linear process but rather a dynamic interplay of motivation, context, and capability (Kundu, 2017).

Further empirical studies have confirmed these theoretical insights. Zulkifli et al. (2019) showed a significant relationship between psychological perceptions and online database usage, validating how mindset and training influence behavior. Meanwhile, Gkorezis et al. (2017) and Shen (2018) found that academic self-efficacy and information-seeking style directly impact academic outcomes.

Gaps and Future Directions

While numerous studies have addressed undergraduate information-seeking behavior globally, limited research exists focusing specifically on Pakistani undergraduate students, especially in rural or under-resourced university settings. Most studies have either targeted postgraduate students or faculty members (Khan & Shafique, 2011; Anmol and Muhammad, 2021),

leaving a gap in understanding the unique needs, behaviors, and challenges of undergraduate populations in public sector universities.

Therefore, this study aims to fill that gap by exploring the online information-seeking behavior of undergraduate students at the University of Peshawar. The research will assess the types of online sources used, the purposes behind information-seeking, the preferred formats, and the challenges to improve academic support services and information literacy initiatives.

METHODOLOGY

Research Design and Methodology

This study employed a quantitative research design using descriptive statistical analysis, which was considered appropriate for exploring behaviors in a large population. Quantitative research is widely recognized for its objectivity, replicability, and ability to generalize findings across similar populations (Connaway & Powell, 2017). Descriptive analysis was used to summarize patterns in students' online information-seeking behavior, which aligns with the study's goal to understand usage trends, preferences, and challenges among final-year undergraduates. Similar methodological approaches have been successfully adopted in past studies, such as those conducted by Savolainen (2007) and Zulkifli et al. (2019), further justifying the approach.

A survey method was used as the data collection technique, which is common in Library and Information Science research due to its effectiveness in capturing a broad range of behaviors and attitudes across large, diverse groups (Connaway & Powell, 2017).

The target population included final-year undergraduate students (7th and 8th semesters) enrolled in various departments at the University of Peshawar for the 2024–2025 academic session. According to official records provided by the Directorate of

Admissions, the total number of eligible students was 523.

A stratified random sampling technique was applied, with each faculty of the university treated as a stratum. Two departments were randomly selected from each of the six faculties using the lottery method to ensure balanced representation. Only students currently enrolled in the 7th semester were considered for inclusion in the study. The departments selected included Geology, Geography, Computer Science, Statistics, Journalism and Mass Communication, Library and Information Sciences, Economics, Sociology, English and Applied Linguistics, History, Islamiyat, and Urdu. Across these departments, a total of 523 students formed the sample frame. This stratified approach ensured proportional representation of all academic faculties, increasing the generalizability of the findings.

A structured questionnaire was developed specifically for this study, guided by an extensive review of the literature. It incorporated adapted items from instruments used in prior studies by Zulkifli et al. (2019); Ahmad, Ahmad & Anwar (2018); Ahmad, Ahmad & Ghafur (2021) and Oyedeyi (2014). The questionnaire was organized into four sections: Demographic Details, Purposes and Use of Online Information Sources, Preferred Formats for Accessing Online Information, and Challenges Faced in the Information-Seeking Process

This format was designed to comprehensively capture students' online information behaviors, motivations, and obstacles.

Pilot Testing and Instrument Reliability

Before full-scale data collection, a pilot test of the questionnaire was conducted with 25 undergraduate students from departments not included in the main sample. Of these, 19 valid responses were received and analyzed using IBM SPSS (Version 22.0). Reliability analysis was conducted to assess the internal consistency of the

questionnaire items. According to Nunnally and Bernstein (1978), a Cronbach's alpha value of 0.70 or higher is considered acceptable for research instruments. The overall Cronbach's alpha for the questionnaire was .944, indicating a high level of reliability. Subscale values were also strong:

- Use Frequency: α = .800
- Purposes of Use: α = .858
- Preferred Format: α = .828
- Challenges in Seeking Information: α = .824

Based on participant feedback, no further revisions were necessary, and the instrument was finalized for data collection.

Demographic Information of the Respondents

A total of 523 questionnaires were distributed, of which 430 were returned. After review, 115 incomplete responses were excluded. The final dataset comprised 315 complete responses, yielding a response rate of 60.2%.

Gender-Wise Analysis

Table 1 presents the demographic information related to the respondents' gender. The analysis showed that out of a total of 315 participants, the majority were male students, comprising 69.5% (n=219), while 30.5% (n=96) were female students who participated in the survey.

Table 1: Gender-Wise Frequency Distribution of the Respondents (N=315)

Gender	Frequency	Percentage
Male	219	69.5
Female	96	30.5
Total	**315**	**100.0**

Department-Wise Analysis

The department-wise data of the respondents is organized in Table 4.2. The sample source included 12 departments. The frequency

distribution and percentage of respondents from each department out of a total of 315 participants. Computer Science has the highest representation, with respondents (14.6%, n=46), followed by English and Applied Linguistics with responses (13.3%, n=42). Economics ranks third, with (9.8%, n=31). Several other departments, such as Journalism and Mass Communication (8.9%, n=28), Library and Information Science (8.6%, n=27), and Geography (8.6%, n=22), have similar representation. Islamiyat and Geology each account for (7.0%, n=22) of the respondents, while Statistics (6.7%, n=21), Sociology (6.3%, n=20), and Urdu (5.7%, n=18) have slightly lower proportions. The History department has the least representation, with only respondents (3.5%, n=11).

Table 2: Respondents Department-Wise Distribution (N=315)

Departments	**Frequency**	**Percentage**
Sociology	20	6.3
Economics	31	9.8
Library and Information Science	27	8.6
Journalism and Mass Communication	28	8.9
History	11	3.5
English and Applied Linguistics	42	13.3
Islamiyat	22	7.0
Urdu	18	5.7
Geography	27	8.6
Geology	22	7.0
Computer Science	46	14.6
Statistics	21	6.7

Total	**315**	**100.0**

Major Findings

Type of Online Information Sources Used

To know what type of online information sources are used frequently by students, 14 sources were mentioned in the questionnaire. Table 3 shows the Mean and Standard Deviation (SD) values for the undergraduate students' online information-seeking behavior at the University of Peshawar. The most frequently used sources include special websites (Mean = 3.89, SD = 1.331), indicating a relatively high and consistent usage across respondents. Similarly, online course platforms such as Coursera (Mean = 3.83, SD = 1.285) and e-journals (Mean = 3.77, SD = 1.336) also show high usage, with moderate variability, suggesting that many respondents regularly rely on these sources for academic and research purposes. Moderately used sources include library catalogs (Mean = 3.69, SD = 1.411), online reference materials (Mean = 3.36, SD = 1.358), and E-libraries (Mean = 3.34, SD = 1.403), showing that these resources are fairly common but with more variation in their use. Online databases such as JSTOR, PubMed, Elsevier, Springer, and others (Mean = 3.16, SD = 1.600) have a slightly lower mean but the highest standard deviation, indicating a wide disparity in how frequently respondents use them. Less frequently used sources include HEC Digital Library (Mean = 3.06, SD = 1.369) and electronic books (Mean = 2.92, SD = 1.309), suggesting that while some respondents use them, their overall usage remains low. Similarly, Google Scholar (Mean = 2.87, SD = 1.529) has a higher variability, showing mixed usage patterns among respondents. The least used sources are Wikipedia (Mean = 2.69, SD = 1.589), news websites (Mean = 2.44, SD = 1.375), and Google search engines (Mean = 2.18, SD = 1.556), indicating that these general sources are not primary choices for academic

purposes. Finally, social media platforms such as YouTube, Facebook, and LinkedIn (Mean = 1.64, SD = 1.255) have the lowest mean, confirming that they are the least preferred sources for scholarly information.

Table 3: Use of Online Information Sources (N=315)

S.No	Online Information Sources	Mean	Std. Deviation
1	Special Websites	3.89	1.331
2	Online Course Platforms such as Coursera	3.83	1.285
3	E-Journals	3.77	1.336
4	Library Catalogs	3.69	1.411
5	Online Reference Materials	3.36	1.358
6	E-Library	3.34	1.403
7	Online Databases such as JSTOR, PubMed, Elsevier, Springer, Taylor & Francis, SAGE, Emerald, etc.	3.16	1.600
8	HEC Digital Library	3.06	1.369
9	Electronic books	2.92	1.309
10	Google Scholar	2.87	1.529
11	Wikipedia	2.69	1.589
12	News Websites	2.44	1.375
13	Google Search Engines	2.18	1.556
14	Social Media Platforms (e.g., YouTube, Facebook, LinkedIn, etc.)	1.64	1.255

Purposes of Using Online Information

To know the purposes of using online information sources while studying the online information seeking behavior among 315 respondents of undergraduate students. The most common purposes include finding quick facts or definitions (Mean = 3.87, SD = 1.168), which is frequently used with relatively low variability. Similarly, completing assignments (Mean = 3.65, SD = 1.291) and

learning new skills or hobbies (Mean = 3.65, SD = 1.436) are highly ranked, though skill learning shows greater variation, suggesting differences in individual engagement. Networking or collaboration (Mean = 3.62, SD = 1.124), exploring career opportunities (Mean = 3.61, SD = 1.388), and preparing presentations (Mean = 3.61, SD = 1.166) are also significant, with career-related searches showing more variability. Participating in online discussions (Mean = 3.60, SD = 1.202) and staying updated with current events (Mean = 3.60, SD = 1.419) have similar means, though staying updated shows higher variability in responses. Moderately used purposes include enhancing subject knowledge (Mean = 3.56, SD = 1.169), exam preparation (Mean = 3.43, SD = 1.488), and developing teaching materials (Mean = 3.41, SD = 1.347), with exam preparation having a higher standard deviation, indicating mixed levels of reliance. Professional development (Mean = 3.33, SD = 1.434), writing articles or papers (Mean = 3.27, SD = 1.471), and academic research (Mean = 3.22, SD = 1.394) rank the lowest, showing that academic writing and research are the least common purposes for online information seeking. The high standard deviations in some categories, such as learning new skills, professional development, and exam preparation, suggest varying levels of engagement among respondents. Overall, the findings indicate that respondents primarily use online sources for quick access to information, assignments, and networking, while academic research and writing are less frequent purposes.

Table 4: Purposes of Using Online Information (N=315)

S.No	Purpose of Online Information Seeking	Mean	Std. Deviation
1	Finding quick facts or definitions	3.87	1.168
2	Completing assignments	3.65	1.291

3	Learning new skills or hobbies	3.65	1.436
4	Networking or Collaboration	3.62	1.124
5	Exploring career opportunities	3.61	1.388
6	Preparing presentations	3.61	1.166
7	Participating in online discussions	3.60	1.202
8	Staying updated with current events	3.60	1.419
9	Enhancing subject knowledge	3.56	1.169
10	Exam Preparation	3.43	1.488
11	Developing teaching materials	3.41	1.347
12	Professional development	3.33	1.434
13	Writing articles or papers	3.27	1.471
13	Academic research	3.22	1.394

Preferred Format of Using Online Information Sources

To determine the preferred format of online information sources when seeking information from undergraduate students. The results presented in Table 5 show the format for using online information sources by students at the University of Peshawar. The most preferred format is PDF documents (Mean = 3.61, SD = 1.402), indicating that respondents frequently rely on downloadable and printable content, though the relatively high standard deviation suggests variation in usage habits. Social media posts (Mean = 3.54, SD = 1.321) are also widely used, reflecting the growing reliance on social platforms for quick and accessible information, with moderate variation among respondents. Recorded lectures (Mean = 3.40, SD = 1.067) and video tutorials (Mean = 3.35, SD = 1.370) are also popular, suggesting that audiovisual learning resources are well-utilized, though video tutorials show slightly more variation in usage patterns. Slide presentations (Mean = 3.30, SD = 1.375) are

another preferred format, likely due to their structured and concise information delivery. Moderately used formats include case studies (Mean = 3.08, SD = 1.340) and online courses (Mean = 3.06, SD = 1.340), indicating that while these formats are valuable for deep learning, they are not as frequently used as other resources. E-books (Mean = 3.04, SD = 1.159) have a similar level of engagement, suggesting that while digital books are a useful resource, they may not be the first choice for information retrieval. Webinars (Mean = 2.96, SD = 1.286), discussion forums (Mean = 2.86, SD = 1.173), and news articles (Mean = 2.86, SD = 1.351) are used less frequently, possibly due to their time-sensitive nature or preference for more structured resources.

The least preferred formats include podcasts (Mean = 2.74, SD = 1.341) and blogs (Mean = 2.74, SD = 1.266), suggesting that respondents do not heavily rely on audio-based or opinion-based content for information. Infographics (Mean = 2.72, SD = 1.202) have the lowest mean, indicating that visual summaries are the least utilized format for online learning.

Table 5: Preferred Format of Online Information Sources (N=315)

S.No	Format for Using Online Information Sources	Mean	Std. Deviation
1	PDF documents	3.61	1.402
2	Social media posts	3.54	1.321
3	Recorded lectures	3.40	1.067
4	Video tutorials	3.35	1.370
5	Slide presentations (e.g., PowerPoint)	3.30	1.375
6	Case studies	3.08	1.340
7	Online courses	3.06	1.340
8	E-books	3.04	1.159
9	Webinars	2.96	1.286

10	Discussion forums	2.86	1.173
11	News articles	2.86	1.351
12	Podcasts	2.74	1.341
13	Blogs	2.74	1.266
14	Infographics	2.72	1.202

Challenges Faced in Seeking Information

Table 6 presents the descriptive statistics for the challenges faced by respondents while seeking information. The highest-rated challenge was copyright issues (M = 3.37, SD = 1.246), indicating that restrictions on information use pose a significant barrier. This was followed by a lack of resources (M = 3.25, SD = 0.970), suggesting that limited access to necessary materials impacts information-seeking efforts. Load-shedding (M = 3.16, SD = 1.134) was also identified as a notable challenge, highlighting the impact of power outages on access to information. Additionally, respondents reported difficulties due to inadequate internet search skills (M = 3.02, SD = 1.017), internet breakdowns (M = 2.98, SD = 1.174), and time constraints (M = 2.98, SD = 1.097), all of which hinder effective information retrieval. Furthermore, a lack of computers or ICT gadgets (M = 2.95, SD = 1.039) was noted as a challenge, reflecting potential digital divide issues. Lastly, information overload (M = 2.88, SD = 1.098) was the lowest-rated challenge, though still a concern for some respondents.

Table 6: Descriptive Statistics Challenges Face While Seeking Information (N=315)

S.No	**Statements**	**Mean**	**Std. Deviation**
1	Copyright	3.37	1.246
2	Lack of resources	3.25	.970
3	Load-shedding	3.16	1.134

4	Inadequate Internet search skills	3.02	1.017
5	Internet Breakdown	2.98	1.174
6	Lack of time	2.98	1.097
7	Lack of computers or ICT gadgets	2.95	1.039
8	Information overload	2.88	1.098

Discussion

The results of this study highlight that final-year undergraduate students at the University of Peshawar engage with a variety of online information sources, but their usage patterns are not uniform. The preference for special websites, online course platforms like Coursera, and e-journals indicates a tilt toward academically reputable platforms. This trend is consistent with findings by Zulkifli et al. (2019), who noted that students tend to rely more on structured and educationally valuable sources when such resources are accessible and well-integrated into their academic environment. However, tools such as Google Search, Wikipedia, and social media platforms were used less frequently, suggesting that students can distinguish between general and scholarly sources, a finding also echoed by Dadaczynski et al. (2021), who found that digitally literate students often filter out non-academic content.

In terms of purpose, students primarily used online sources to find quick facts, complete assignments, and explore career-related opportunities. This aligns with Guay and Reynolds (2018), who identified that students' immediate academic needs, such as meeting deadlines, drive their online information-seeking behavior. Interestingly, purposes related to academic research and professional writing had the lowest mean scores, possibly indicating a lack of confidence or training in academic research, as supported by Ahmad et al. (2019). Moreover, the format of content consumed also reflected a strong preference for downloadable

materials such as PDFs and audiovisual resources like recorded lectures and video tutorials. This preference for multimedia formats corresponds with the conclusions of Horsfall et al. (2020), who noted that students favour resources that are both accessible and engaging.

Despite these patterns, several significant challenges were identified. Copyright restrictions, lack of resources, and load-shedding were among the highest-rated obstacles, reflecting systemic infrastructural problems common in Pakistani academic settings (Khan & Khan, 2020; Humbhi et. al., 2022). Other notable issues included time constraints, lack of digital devices, and poor search skills. These findings are consistent with those of Chowdhury et al. (2011), who argued that even when access to online sources is available, poor search strategy and cognitive overload can limit effectiveness. These challenges underscore the need for enhanced training in information literacy, improved digital infrastructure, and more equitable access to ICT resources.

Overall, the study suggests that while students demonstrated moderate engagement with online information sources, their potential is limited by both internal factors (such as digital skills and motivation) and external constraints (such as infrastructure and copyright issues). Addressing these barriers is essential for fostering a more productive academic environment.

Conclusion

This study concludes that undergraduate students at the University of Peshawar make moderate but meaningful use of online information sources, particularly those designed for academic purposes. Students gravitate toward structured formats such as e-journals, PDF documents, and video-based content, reflecting a balance between traditional and modern digital learning preferences. The purpose of their information-seeking behavior is

largely task-oriented, focused on assignments and quick factual learning, rather than in-depth academic research.

Despite the moderate engagement, significant challenges persist. Copyright issues, infrastructure limitations, and insufficient access to digital tools and reliable internet services hinder students' ability to fully utilize online academic resources. Furthermore, there remains a noticeable gap in critical research skills and awareness of credible databases, which limits the depth and quality of academic engagement. These issues, while not unique to the University of Peshawar, are emblematic of broader systemic challenges in the higher education sector across developing countries.

To improve the online information-seeking behavior of students, institutional efforts must prioritize information literacy training, investment in digital infrastructure, and the integration of academic research tools into the curriculum. Addressing these areas will empower students to move beyond surface-level information use and engage more deeply in scholarly practices that enhance learning and academic performance.

Recommendations

To develop an investigation into the online information-seeking behavior of undergraduate students at the University of Peshawar, here are some recommendations:

- Conduct digital literacy training programs to improve students' academic search and evaluation skills.
- Increase accessibility to academic databases and ensure students are aware of them through orientation sessions.
- Upgrade ICT infrastructure, including stable internet and access to digital devices within the university.
- Encourage faculty to assign tasks that require the use of credible academic sources.

- Embed information-seeking skills and citation practices in undergraduate courses.
- Promote open-access resources to reduce reliance on subscription-based materials.
- Provide support for students with limited English proficiency to access and understand scholarly content.
- Establish a centralized digital learning hub with guides, tutorials, and resource links tailored to academic needs.

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