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FROM CONNECTIVITY TO ACHIEVEMENTS: THE ROLE OF INTERNET USE IN THE ACADEMIC SUCCESS OF LIS STUDENTS

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Abstract
The integration of internet technology into academic environments has significantly reshaped the educational experiences of students, particularly those in information-intensive disciplines such as Library and Information Science (LIS). This study explores the extent, purpose, and impact of internet usage on the academic success of LIS students in selected universities (public sector) of Khyber Pakhtunkhwa (KP), Pakistan. Employing a quantitative research design, the study used a descriptive-correlational technique. Data were collected through a structured and validated questionnaire distributed to 215 students across three LIS departments in KP. The findings revealed that the majority of LIS students hold a positive attitude toward the academic use of the internet, recognizing it as a reliable source of information, a tool for communication with professionals, and a gateway to modern technologies and digital learning environments. Internet usage was most prominent for activities such as accessing digital libraries, engaging in academic communication, retrieving the latest information, and utilizing online learning platforms. However, the study also identified a range of barriers that hinder effective usage, including digital distractions, slow internet speed, power outages, privacy concerns, and insufficient digital literacy skills. The research provides practical recommendations for educators, administrators, and policymakers to enhance the educational impact of internet use and promote academic excellence in the digital age.

Introduction

The academic landscape has undergone a profound transformation with the widespread integration of the Internet into educational practices. The advent of the digital age has transformed the students' access, retrieval, and engagement with academic information. The Internet, once a novelty, has become an indispensable tool for academic pursuits, offering an extensive repository of resources, collaborative platforms, and opportunities for interactive learning to students. This shift prompts a critical examination of the academic use of the Internet and its impact on the academic achievement of students. This study is an attempt to explore the multifaceted roles played by the Internet in shaping contemporary educational experiences, evaluating the challenges and opportunities it presents, and scrutinizing its influence on Library and Information Science student performance. As the Internet continues to shape the educational landscape, understanding its intricate dynamics becomes paramount for educators, students, and researchers alike. This study endeavors to unravel the intricate relationship between academic Internet use and student achievement, shedding light on the evolving paradigms of learning in the digital era (Mohamad, Ahmad et al. 2019)

As this research is all about the internet usage by the Library and Information Science Students, therefore it is important to know that what are basically the Internet and its academic benefits. Internet is a global network which connects computers and computer network in the Globe, enabling the information exchange among the computers. We have to know about the uses of the Internet. Following are some basic uses of the internet. The internet allows users to communicate through various channels like email, instant messaging, video conferencing, and social media platforms. Users can access a vast array of information, including articles, research papers, videos, and images. The internet supports diverse online services such as shopping, banking, education, and entertainment. It enables remote collaboration, allowing people to work together on projects/assignments regardless of their geographical locations. The internet serves as a platform for various forms of entertainment, including streaming videos, music, and gaming. Many businesses operate online, facilitating the buying and selling of goods and services (Chatzifotiou, Filippidis et al. 2021).

The internet requires the availability of many requisites such as operating protocols like the Transmission Control Protocol (TCP) and the Internet Protocol (IP), the internet relies on the Internet Protocol Suite (TCP/IP) for data transmission and communication. The World Wide Web (WWW) consists of interlinked hypertext documents and multimedia content accessed via web browsers (Osagie, Ajayi et al. 2019).

The internet is an essential part of modern life, impacting communication, business, education, and entertainment globally. Its continuous evolution, driven by technological advancements, shapes its future. The contemporary landscape of academic endeavors is also marked by a significant reliance on the internet. This study seeks to investigate the impact of internet utilization on the academic success of Library and Information Science (LIS) students in Khyber Pakhtunkhwa (KP) Universities, Pakistan. The academic success of the students can be measured through different factors such as their academic grades and GPA, timely completion and submission of assignments, class engagement and participation, homework completion consistency, attendance, and teacher's evaluation. Combining multiple assessment methods provides a more comprehensive understanding of a student's academic performance. Understanding the dynamics of internet use in the context of academic performance is crucial for shaping educational practices and enhancing the academic experience of students in the region(Anwar, Shoaib et al. 2024). The purpose of this study is to investigate the extent and nature of the academic use of the Internet among LIS students and to analyze its impact on their academic achievements.

In most of the LIS departments in Khyber Pakhtunkhwa universities there are adequate uses of the internet. The students of Library and Information Science are also availing this facility in their departments. Being the LIS student, it is very important to be computer technology literate person, for the purpose to make the adequate and effective use of internet in the libraries of KP in future and academic success currently. The proposed research work aims to investigate role of internet in academic success of LIS students. This study will also look at the internet usage patterns by considering attitude of LIS students towards the internet and purpose of its usage. It will also examine the relationship of the internet usage pattern of the internet on academic success of LIS students.

Research Objectives

The objectives of this study will include the following:

1. To find the attitude of LIS students towards the internet.

2. To find the purpose of internet usage by LIS students.
3. To study the correlation between their internet use and their academic success.
4. To find the barriers facing by the LIS student while utilizing internet for various academic purposes.

Literature Review

The literature on the Internet highlights its significant role in transforming communication, education, and research across the world. The Internet originated from the Advanced Research Projects Agency Network (ARPANET), developed by the United States Department of Defense during the 1960s. ARPANET was designed as a decentralized communication system capable of functioning even during military emergencies or nuclear attacks. Its decentralized architecture enabled computers to communicate over long distances, laying the foundation for the modern Internet (Leiner, Cerf et al. 2009). Initially, the Internet was limited to military and scientific purposes, but its protocols later facilitated communication and resource sharing among universities and research institutions. During the 1980s, additional academic networks such as NSFNET were introduced to support the increasing demand for research communication. The development of Transmission Control Protocol (TCP) and Internet Protocol (IP) standards further expanded networking capabilities, while Tim Berners-Lee's invention of the World Wide Web in 1989 transformed the Internet into a user-friendly global information system (Kan and Kim 2019). These developments marked the beginning of a new era in which the Internet became accessible to the general public and revolutionized the way information is created, shared, and accessed.

Researchers have consistently described the Internet as one of the most influential technological innovations in modern education. Before the emergence of the Internet, students and researchers mainly depended on physical libraries, printed books, and locally available resources. Access to scholarly journals and international research materials was limited, especially in developing countries. However, the growth of the Internet significantly improved access to academic resources by enabling online access to journals, databases, e-books, and digital libraries (Segura-Robles, Moreno-Guerrero et al. 2020). This transformation has greatly influenced higher education by changing traditional teaching and learning methods. Students are now able to conduct online research, communicate with instructors, collaborate with classmates, and participate in virtual learning environments. In the field of Library and Information Science, the Internet has become particularly important because information professionals increasingly depend on digital technologies for information storage, retrieval, organization, and dissemination (Tait, Martzoukou et al. 2016). The literature emphasizes that understanding the historical development of the Internet is necessary to understand its current role in academia and research.

Several scholars define the Internet as more than just a technological tool; they view it as a platform for knowledge sharing, communication, collaboration, and educational development. According to Li, Li et al. (2022), the Internet serves as a vital educational resource because it provides access to online scholarly databases, digital libraries, electronic journals, and educational websites. Students use the Internet to search for academic information, complete assignments, communicate with peers, and stay updated with global developments in their fields of study. In LIS education, the Internet acts both as a source of information and as a learning environment where students can develop skills related to information management and digital communication (Audunson 2018). The Internet also facilitates collaboration among researchers and students from different geographical locations, allowing them to exchange ideas and participate in joint academic activities. The literature further highlights the importance of the Internet in reducing educational inequalities, particularly in developing countries. Access to quality educational infrastructure remains limited in many rural areas, including regions of Pakistan. According to Zhou, Chen et al. (2019), students in rural communities rely heavily on the Internet to obtain educational resources that are otherwise unavailable in their local institutions. Online learning platforms, digital libraries, and open-access educational resources provide opportunities for students to access the same information available to students in urban universities. Molerov, Zlatkin-Troitschanskaia et al. (2020) explain that the Internet functions as an equalizer in education because it reduces barriers caused by geographical distance and limited physical resources. This role of the Internet became even more visible during periods when online education replaced traditional classroom instruction in many countries. Despite its advantages, the literature also identifies several challenges associated with Internet use in academic settings. One of the most significant issues is the digital divide, which refers to inequalities in access to Internet services and digital

technologies. In many developing regions, reliable Internet connectivity is still limited due to poor infrastructure, high costs, and lack of technological resources. Students living in rural areas often face difficulties accessing online educational materials because of weak Internet signals and limited availability of devices. These inequalities negatively affect students' participation in digital learning environments and limit their ability to benefit fully from online education.

Another major challenge discussed in the literature is information overload. The Internet contains an enormous amount of information, making it difficult for students to distinguish reliable academic sources from inaccurate or misleading information. This problem is particularly important in the field of LIS, where evaluating the credibility and quality of information is a fundamental skill. Researchers argue that students must possess strong information literacy skills to search, evaluate, and use online information effectively. Without these skills, students may rely on unreliable sources that negatively affect the quality of their academic work. In addition, the literature identifies concerns related to privacy and data security. Educational institutions increasingly depend on online learning systems and digital databases, making the protection of personal and research data an important issue. Cybersecurity threats, unauthorized access, and data misuse are growing concerns in academic environments.

The future role of the Internet in education and research is another major theme in the literature. Scholars predict that emerging technologies such as artificial intelligence (AI), machine learning, blockchain, and the Internet of Things (IoT) will further transform academic activities. AI-powered systems can help researchers analyze large datasets, identify research patterns, and improve information retrieval processes. In the field of LIS, AI and machine learning may revolutionize digital libraries by providing personalized recommendations, automated indexing, and predictive information services. Blockchain technology is also expected to improve the security and transparency of academic publishing by ensuring the authenticity and integrity of research data. Similarly, IoT technologies may contribute to the development of smart campuses and smart libraries where users can access resources and services more efficiently. These technological advancements indicate that the Internet will continue to play an increasingly important role in academic environments.

The literature also stresses the growing importance of digital literacy in LIS education. Digital literacy refers to the ability to use digital technologies effectively for information searching, communication, collaboration, and content creation. LIS students are expected to possess strong digital literacy skills because their future professional roles involve managing and organizing digital information resources. According to previous studies, digital literacy includes not only technical abilities but also ethical and critical thinking skills. Students must understand issues related to copyright, intellectual property, plagiarism, data privacy, and ethical information use. Digital curation skills are also becoming increasingly important because information professionals are required to preserve and manage digital content effectively. The Internet provides numerous opportunities for developing digital literacy through online tutorials, webinars, virtual courses, and professional networking platforms. Through these resources, LIS students can enhance their knowledge and interact with information professionals worldwide. Another important topic discussed in the literature is the impact of the Internet on traditional libraries. The emergence of digital technologies has transformed libraries from physical repositories of books into modern information centers offering digital services and online resources. Digital libraries and online databases enable users to access information remotely without visiting physical library buildings. This transformation has increased access to information and expanded the role of libraries in supporting education and research. However, the transition from traditional to digital library services has also created challenges. Librarians are now required to develop digital competencies in addition to traditional library management skills. Libraries must also invest in technological infrastructure, digital systems, and staff training to maintain effective digital services. Despite these challenges, the literature suggests that libraries remain essential institutions in the digital age because they continue to support knowledge creation, preservation, and dissemination. Several studies reviewed in the literature examine students' attitudes toward the Internet. Habibur (2020) found that a large majority of university students use the Internet regularly and believe that it positively contributes to academic performance. Similarly, Idrees and Rehman (2010) reported that LIS students generally feel comfortable using the Internet and consider it easier than traditional research methods, although some students still face difficulties in academic environments. Habes et al. (2018) also concluded that Internet use positively influences students' academic achievement. Nawaz (2021) observed that many students believe the Internet can serve

as an alternative to printed books and traditional information sources. Researchers further found that students in technical and information-related disciplines such as LIS tend to show more positive attitudes toward the Internet compared to students who mainly use it for entertainment purposes.

The literature also explores the purposes for which LIS students use the Internet. Malik and Mahmood (2009) reported that most LIS students use the Internet primarily for educational purposes, including searching for study materials, accessing academic information, and completing assignments. Many students also use the Internet daily for entertainment and communication activities. Buarki and Sung (2024) highlighted the growing role of social media and mobile Internet technologies in academic communication. Platforms such as Facebook, Twitter, WhatsApp, and YouTube are frequently used by students to share educational resources, interact with peers and faculty members, and participate in online discussions. Klomsri and Tedre (2016) found that students often prefer online searching over traditional library visits because of convenience, wireless access, and immediate availability of information. Similarly, Desmal (2017) noted that social networking platforms support collaborative learning and enhance students' educational experiences. Anjum and Bhatti (2024) argued that the Internet not only supports traditional teaching methods but also creates opportunities for interactive and student-centered learning environments.

In addition to benefits, the literature identifies several barriers affecting academic Internet use among LIS students. Technical and infrastructural problems are among the most commonly reported challenges. Slow Internet speed, low bandwidth, and insufficient ICT infrastructure limit effective online learning and research activities (Malik and Mahmood 2009). Similar issues have been reported in studies conducted in Iraq, Kuwait, and Taiwan, where students experienced difficulties accessing educational databases because of technological limitations. Digital literacy problems also remain significant. Some students lack the skills needed to evaluate online information, apply proper citation styles, and use effective search strategies. Researchers have also discussed "library anxiety," where students feel uncertain or anxious about using library resources and research systems. Furthermore, digital distractions caused by multitasking and excessive social media use can negatively influence students' academic performance. Institutional barriers such as lack of training, limited orientation programs, and inadequate support for e-learning systems also reduce students' ability to use Internet resources effectively. Overall, the reviewed literature demonstrates that the Internet has fundamentally transformed academic research, education, and information management. It has become an indispensable tool for students, researchers, and information professionals, especially in the field of LIS. The Internet provides opportunities for improved access to information, academic collaboration, digital learning, and professional development. At the same time, the literature highlights important challenges related to digital inequality, information literacy, infrastructure, and data security. Future technological developments such as AI, machine learning, blockchain, and IoT are expected to further strengthen the role of the Internet in academic environments. Therefore, educational institutions and policymakers must focus on improving digital literacy, technological infrastructure, and equitable access to Internet resources to ensure that all students can benefit from the opportunities offered by the digital age.

Research Methodology

Research Design

The study adopts a quantitative research paradigm, particularly a descriptive correlational design. This design is suitable for investigating the associations and patterns among measurable variables—in this case, the frequency and purpose of internet use and indicators of academic success. By utilizing this design, the researcher aims to quantitatively describe trends and draw meaningful connections between internet usage behaviors and academic outcomes. The correlational approach does not involve manipulation of variables, as would be the case in experimental research, but rather observes and analyzes the relationships as they naturally occur among the population being studied. This design is most appropriate given the exploratory nature of the study and its focus on measuring pre-existing conditions rather than testing cause-effect relationships.

Target Population

The target population for this study consists of students currently enrolled in the Library and Information Science programs across several public universities in KP. This population was selected due to the direct relevance of their academic field to digital literacy and online research tools. The LIS field inherently involves substantial interaction with digital databases, e-resources, academic search engines, and electronic libraries. Therefore, these students serve as a relevant and information-rich group for understanding how internet access contributes to or hinders academic

performance. Moreover, the geographic focus on KP provides valuable insights into how infrastructural limitations, regional digital divides, and local academic environments shape students' experiences with the internet. The population includes both male and female students, covering undergraduate, graduate, and postgraduate levels, thereby ensuring diversity in academic maturity and exposure to internet-based learning.

Currently, three universities in Khyber Pakhtunkhwa offer Library and Information Science (LIS) education: the University of Peshawar, Khushal Khan Khattak University Karak, and Sarhad University of Science and Technology (a private institution in Peshawar). These institutions offer various LIS programs, including BS in LIS, MS/M.Phil in LIS, and Ph.D. in Library and Information Science.

To obtain enrollment data, one faculty member from each LIS department was contacted directly (Ahmad, personal communication, SUIT; Shahab, personal communication, KKKU). According to the information provided, the estimated total number of enrolled LIS students across these universities is 489.

Sample size and sampling technique

The sample size comprised 215 students from three major public universities in KP, calculated using the Rao-Soft online sample size calculator, based on a total population of 489 students. This number was deemed sufficient for quantitative analysis, particularly for establishing correlations between variables. Students from various academic years and both genders were included to improve representativeness.

To ensure fair and balanced representation from each group, a proportionate stratified random sampling method was applied. The distribution of the sample across various academic strata is presented in Table 3.1. A total of 215 questionnaires were administered among the three selected universities. Specifically, 156 questionnaires were distributed to BS-LIS students, 54 to MS/M.Phil LIS students, and 5 to Ph.D. students, selected randomly through lottery method.

Table3.1: ***Stratified Proportionate Random Sampling***

S. No.	Program	Population	Proportionate Random Sampling Formula used; nh=Nh/N x n
1.	B.S	358	358 X 215 / 489 = 156
2.	MS/M.Phil	120	120 X 215 / 489 = 54
3.	Ph.D	11	11 X 215 / 489 = 05
Total Sample Size			215

Development of Data Collection Instrument

The primary data collection instrument used in this study was a structured questionnaire, developed specifically for this research context. The development of the questionnaire was informed by a review of existing literature, previous studies on internet usage and academic performance, and feedback from academic supervisors. The questionnaire was designed to capture a wide range of information relevant to the study's objectives. It included items related to demographic characteristics (such as age, gender, academic level, and university affiliation), students' attitudes toward internet usage, the purposes for which the internet is used in academic settings, frequency and duration of use, and perceived impact on academic tasks such as assignment completion, research, and exam preparation. The questionnaire was also constructed to identify obstacles and limitations faced by students while using the internet for academic purposes, including connectivity issues, lack of digital literacy, and institutional barriers. Most items used a five-point Likert scale, allowing respondents to express degrees of agreement or frequency, which facilitated subsequent statistical analysis.

Review of the Instrument

In order to ensure that the questionnaire was valid and reliable, it underwent a detailed review and pilot testing process. Initially, the draft questionnaire was submitted to three experts: two faculty members from LIS departments and one expert in research methodology. These individuals provided detailed feedback on the structure, wording, clarity, and relevance of the questionnaire items. Their suggestions were incorporated into a revised version of the questionnaire. Following this, a pilot study was conducted with a group of twenty students from a public university not included in the main study. The goal of this pilot testing was to assess the clarity and reliability of the questionnaire, as well as to identify any ambiguities or confusing items that could compromise the quality of the data. The responses from the pilot study were analyzed using Cronbach's Alpha to determine internal consistency. The reliability coefficient was calculated to be 0.82, which

is considered strong and indicates that the instrument is reliably measuring the constructs it was designed to assess. Based on the pilot study, minor revisions were made to improve the clarity of certain questions and to streamline the layout of the questionnaire for better usability.

Data Collection

The data collection process was carried out over a six-week period, following the completion of the questionnaire review. To ensure maximum participation in institutions where physical access was feasible, printed questionnaires were distributed during class sessions with prior permission from faculty members. Overall, the response rate was high, with 165 valid questionnaires returned out of 215 distributed, yielding a response rate of approximately 76.74%.

Data Analysis

Once the data were collected, they were systematically organized and prepared for analysis. Data from the printed questionnaires were manually entered into SPSS (Statistical Package for the Social Sciences) version 25 for analysis. The first step in data analysis was data cleaning, which involved checking for missing values, outliers, and inconsistencies in the responses. Variables were coded numerically to facilitate statistical procedures. The analysis itself was conducted in two main phases: descriptive and inferential statistics. Descriptive statistics were used to summarize the demographic characteristics of the sample, patterns of internet use, frequency distributions, and students' attitudes toward digital tools. Measures such as means, medians, standard deviations, and percentages were employed to describe trends within the data. These summaries provided an essential foundation for understanding how internet use is integrated into students' academic routines.

Inferential statistics were then applied to explore relationships between variables. The Pearson correlation coefficient was used to assess the strength and direction of the association between levels of internet use and indicators of academic performance such as GPA and internet Usage. Additionally, ANOVA (Analysis of Variance) tests were also conducted to identify any significant differences in internet usage across different academic levels (undergraduate, graduate, and postgraduate). Throughout the analysis, a 95% confidence interval was used, and results were considered statistically significant if the p-value was less than 0.05. In conclusion, the methodology adopted for this research was carefully chosen to ensure that the data collected would be both relevant and reliable. The quantitative, descriptive-correlational design enabled the researcher to measure observable patterns in internet usage and academic performance. The structured questionnaire, refined through expert review and pilot testing, ensured a high level of content validity and internal consistency. The combination of purposive sampling, robust data collection procedures, and thorough statistical analysis allowed the study to generate meaningful insights into the academic behaviors of LIS students in KP.

Findings of the Study

This chapter covers the overall results of the study. that how different variables are tested and what are the expected outcomes along with their interpretation. Here specifically I tested the correlation among educational success and different factors to influence them.

Response Rate

Before entering the data into SPSS, all collected questionnaires were thoroughly checked for accuracy and completeness. Out of 215 distributed questionnaires, 165 were returned. After verification, all 165 were found to be complete and suitable for analysis. This resulted in a response rate of 76.%.

Demographic of the Respondent

The paragraphs that follow provide specific demographic data, such as age, gender, qualifications, and the institution where they are enrolled.

Age-Wise Distribution of the Participants

Table 4.1 displays the respondents' age distribution. The bulk of responders, or 69.7% of the sample (n = 115), were in the 20–25 age range. 11.5% (n = 19) of respondents were between the ages of 31 and 35, whereas a lesser percentage (17.6%, n = 29) were between the ages of 26 and 30. Of the respondents, just 1.2% (n = 2) were in the 36–40 age range. The sample size was 165 in total.

Table 4.1: ***Age Wise distribution of the Respondents(N=165)***

Age	Frequency	Percent	Valid Percent	Cumulative Percent
20-25	115	69.7	69.7	69.7
26-30	29	17.6	17.6	87.3
31-35	19	11.5	11.5	98.8
36-40	2	1.2	1.2	100.0

Total	**165**	**100.0**	**100.0**

Gender Wise Distribution of the Participants

Table 4.2 displays the respondents' gender breakdown. Male respondents made up 66.7% of the sample (n = 110), making up the majority of responders. Female respondents made up the remaining 33.3% of the sample (n = 55). The sample size was 165 in total.

Table 4.2: ***Gender-based Distribution of Respondents (N=165)***

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	110	66.7	66.7	66.7
Female	55	33.3	33.3	100.0
Total	**165**	**100.0**	**100.0**	

Qualification-wise Distribution of the Respondents

Table 4.3 displays the respondents' distribution of qualifications. 77.0% of the sample (n = 127) had a Bachelor's degree (BS), making up the bulk of responders. A Master's or MPhil degree was earned by the remaining 23.0% of respondents (n = 38). The sample size was 165 in total.

Table 4.3: ***Qualification Wise distribution of the Respondents(N=165)***

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
BS	127	77.0	77.0	77.0
MS/MPhil	38	23.0	23.0	100.0
Total	**165**	**100.0**	**100.0**	

Intuition wise distribution of the respondents

Table 4.4 shows the respondents' distribution according to their institution. The majority of responders (40.0%, n = 66) were students at the University of Peshawar's (UOP) Department of Library and Information Science (DLISc). A sizable percentage (35.2%, n = 58) came from the DLISc at Khushal Khan Khattak University (KKKU), whereas 24.8% (n = 41) came from the DLISc at Sarhad University of Information Technology (SUIT). The sample size was 165 in total.

Table 4.4: ***Institutions Wise distribution of the Respondents(N=165)***

Institutions	Frequency	Percent	Valid Percent	Cumulative Percent
DLISc UOP	66	40.0	40.0	40.0
DLISc SUIT	58	35.2	35.2	75.2
DLISc KKKU	41	24.8	24.8	100.0
Total	**165**	**100.0**	**100.0**	

Cgpa Wise Distribution Of The Respondents

The table displays the respondents' GPA dispersion. The majority of responders (44.8%, n = 74) had GPAs between 3.0 and 3.4. A sizable percentage (34.5%, n = 57) had a GPA in the range of 3.5 to 3.9. GPAs for smaller groups of responders ranged from 2.0 to 2.4 (1.2%, n = 2) and from 2.5 to 2.9 (18.2%, n = 30). Last but not least, 1.2% of participants (n = 2) had a GPA of 4. The sample size was 165 in total.

Table 4.5 CGPA Wise distribution of the Respondents(N=165)

CGPA	Frequency	Percent	Valid Percent	Cumulative Percent
2.0-2.4	2	1.2	1.2	1.2
2.5-2.9	30	18.2	18.2	19.4
3.0-3.4	74	44.8	44.8	64.2
3.5-3.9	57	34.5	34.5	98.8
4	2	1.2	1.2	100.0
Total	**165**	**100.0**	**100.0**	

4.8 Assignment submission Wise distribution of the Respondents

The table shows the frequency and percentage of submission times relative to the due date. The largest group of submissions occurred on the due date (n = 84, 50.9%). A substantial number of submissions were also received before the due date (n = 67, 40.6%), while a smaller

proportion of submissions were received after the due date (n = 13, 7.9%).

Table 4. 6: ***Assignment submission Wise distribution of the Respondents(N=165)***

Assignment submission date	Frequency	Percent	Valid Percent	Cumulative Percent
Before due date	67	40.6	40.6	40.6
On due date	84	50.9	50.9	91.5
After due date	13	7.9	7.9	99.4
Total	**165**	**100.0**	**100.0**	

Attitude of LIS students towards the Internet

Table 4.7 presents the mean and standard deviation scores for participants' responses regarding their perceptions of internet use for academic and professional purposes in Library and Information Science (LIS). The highest mean score was observed for the belief that the internet is a reliable source of academic information (M = 3.99, SD = 1.07), followed closely by the view that the internet facilitates connection with professionals in the field (M = 3.98, SD = 1.01).

Participants also agreed that the internet opens doors for new technologies (M = 3.92, SD = 1.24) and that they feel comfortable using it for research (M = 3.85, SD = 1.26). However, a similar mean score was reported for frustration caused by misinformation (M = 3.85, SD = 1.14), indicating mixed feelings about the reliability of internet sources.

Statements regarding the internet's role in providing online learning opportunities (M = 3.85, SD = 1.18), replacing traditional library resources (M = 3.82, SD = 1.09), and enhancing collaboration among professionals (M = 3.78, SD = 1.17) also received moderate agreement. Confidence in the credibility of internet information received a slightly lower mean score (M = 3.75, SD = 1.14), and the lowest agreement was with the idea that the current generation is particularly skilled at using the internet for research (M = 3.56, SD = 1.17). Descriptive statistics about the overall attitude towards the Internet usage indicated that Internet usage among the 165 participants ranged from a minimum score of 2 to a maximum of 5. The mean score of attitudes towards Internet was 3.91 with a standard deviation of 0.72, suggesting that, on average, participants reported relatively high levels of attitude towards Internet use with a moderate degree of variability. The distribution of scores indicates that most participants used the Internet frequently, though some variation existed in usage patterns.

Table 4.7: ***Attitude of LIS students towards Internet(N=165)***

	Participants Attitude towards Internet	Mean	SD
1.	I believe that internet is reliable source of academic information.	3.99	1.068
2.	Through internet we stay connected to the professional in the field.	3.98	1.009
3.	Internet opens door for new technologies.	3.92	1.244
4.	I feel comfortable while use internet for research.	3.85	1.255
5.	Sometimes I feel frustration due to misinformation.	3.85	1.140
6.	Internet provides valuable online learning opportunities for LIS students.	3.85	1.182
7.	Internet has replaced traditional library resources.	3.82	1.093
8.	Internet has enabled greater collaboration and knowledge-sharing among LIS professionals.	3.78	1.165
9.	I am confident on the internet information credibility	3.75	1.140
10.	Our generation is particularly skilled at using the internet for research	3.56	1.165
	Overall attitude	**3.91**	**0.72**

Independent Samples *t*-Test for attitude towards the internet by Gender

An independent samples *t*-test was conducted to compare Internet usage between male and female students. The assumption of equal variances was met, F (1, 163) = 0.80, p = .373. The results indicated that there was no significant difference in attitude towards the internet between males (M = 3.89, SD = 0.74) and females (M = 3.95, SD = 0.66), t (163) = -0.49, p = .625, 95% CI [−0.29, 0.18]. This suggests that gender was not associated with a significant difference in Internet usage.

Table 4.8: ***Independent Samples t-Test for attitude towards the internet by Gender***

Assumption	*t*	*df*	*p*	Mean Diff.	SE Diff.	95% CI (Lower)	95% CI (Upper)
Equal variances assumed	-0.49	163	.625	-0.06	0.12	-0.29	0.18
Equal variances not assumed	-0.51	120.17	.611	-0.06	0.11	-0.28	0.17

Group Statistics

Qualification	N	Mean	Std. Deviation	Std. Error Mean
BS	127	3.8764	.65150	.05781
MS/MPhil	38	4.0385	.89827	.14572

Independent Samples Test: Levene's Test for Equality of Variances: t-test for Equality of Means										
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Internet usage	Equal variances assumed	6.216	.014	-1.225	163	.222	-.16202	.13221	-.42309	.09905

Attitude towards internet by students of the three institutions

A one-way analysis of variance (ANOVA) was conducted to examine differences in attitude towards internet across three groups based on institutional affiliation. There was a statistically significant difference in Internet usage between the groups, F (2, 162) = 16.42, $p < .001$, $\eta^2 = .17$.

Table 4.9: ***Attitude towards Internet by Students of Different Universities***

Groups	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	14.175	2	7.087	16.418	.000
Within Groups	69.929	162	.432		
Total	**84.104**	**164**			

Perception about overall attitude towards the internet within institution

Post hoc comparisons using the Tukey HSD test indicated that mean attitude towards internet was significantly lower for students from DLISc UOP (M difference = -0.65, $p < .001$) compared to DLISc SUIT, and also significantly lower compared to DLISc KKKU (M difference = -0.50, $p = .001$). However, there was no significant difference in Internet usage between students from DLISc SUIT and DLISc KKKU (M difference = 0.15, $p = .500$).

Table 4.10: ***Tukey HSD test: Multiple Comparisons, Dependent variable: internet usage, Tukey HSD Test***

(I) Institution	(J) Institution	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
DLISc UOP	DLISc SUIT	-.64910*	.11825	.000	-.9288	-.3694
	DLISc KKKU	-.49827*	.13065	.001	-.8073	-.1892
DLISc SUIT	DLISc UOP	.64910*	.11825	.000	.3694	.9288
	DLISc KKKU	.15084	.13406	.500	-.1663	.4679
DLISc KKKU	DLISc UOP	.49827*	.13065	.001	.1892	.8073
	DLISc SUIT	-.15084	.13406	.500	-.4679	.1663

The mean difference is significant at the 0.05 level.

Homogeneous Subsets: Tukey HSC[a,b]

Institution	N	Subset for alpha = 0.05	
		1	2
DLISc UOP	66	3.5618	
DLISc KKKU	41		4.0600
DLISc SUIT	58		4.2109
Sig.		**1.000**	**.467**

The means for groups within homogeneous subsets are shown.

a. The Harmonic Mean Sample Size used is 52.833.

b. The group sizes are unequal, so the harmonic mean of the group sizes is applied. Type I error rates are not guaranteed.

Purposes of Internet Usage for LIS Students

Participants were asked to rate the importance of various internet functions related to academic and professional activities. Means and standard deviations for these items are shown in Table 2. The highest-rated uses of the internet were *accessing the latest information and updates* (M = 4.07, SD = 1.03) and *accessing digital libraries* (M = 4.07, SD=1.09), indicating that these functions are perceived as highly

important. Communication via email, social media, and other platforms was also rated highly (M = 4.01, SD = 1.10), along with the use of online learning platforms (M = 3.98, SD = 1.12).

Participants valued the internet's role in providing access to a wider range of resources compared to traditional libraries (M = 3.92, SD = 1.03), as well as its utility for assignments and project completion (M = 3.92, SD = 1.08) and staying updated with industry trends (M = 3.92, SD = 1.10). Access to online databases and journals was similarly important (M = 3.90, SD = .91). Academic research (M = 3.87, SD = 1.28), collaboration (M = 3.86, SD = 1.16), continuing education and certification (M = 3.84, SD = 1.11), and data collection and analysis (M = 3.82, SD = .99) were moderately valued. Digital scholarship and publishing were rated the lowest among the listed functions, though still moderately important (M = 3.70, SD = 1.19). A one-sample descriptive analysis was conducted on overall purpose of internet usage. The results indicated that, on average, participants reported a moderately high level of internet usage for overall purposes (M = 3.91, SD = 0.72, N = 165). The mean had a standard error of 0.06.

Table 4.11: ***Purposes of the Internet Usage by LIS Students(N=165)***

Purposes of Internet Use		Mean	SD
1.	Accessing the latest information and updates.	4.07	1.027
2.	Accessing digital library	4.07	1.091
3.	Communication (email, social media, etc.)	4.01	1.102
4.	Online learning platforms.	3.98	1.120
5.	Exploring a wider range of resources than traditional libraries.	3.92	1.030
6.	Assignments and project completion	3.92	1.084
7.	To stay updated with industry and trends	3.92	1.099
8.	Accessing online databases and journals.	3.90	.905
9.	Academic research	3.87	1.281
10.	Collaboration.	3.86	1.158
11.	Continuing education and certification	3.84	1.111
12.	Data collection and analysis	3.82	.994
13.	Digital scholarship and publishing	3.70	1.185
Valid N (list wise)		**3.91**	**0.72**

The Internet usage as per the respondents' qualification

A comparison of internet usage based on qualifications of the respondents' revealed that participants with a BS degree (M = 3.88, SD = 0.65) reported slightly lower average internet usage than those with an MS/MPhil degree (M = 4.04, SD = 0.90). The standard error of the mean was 0.058 for the BS group and 0.146 for the MS/MPhil group, reflecting a more precise estimate for the BS group, likely due to its larger sample size (n = 127 vs. n = 38).

Table 4.12: Internet usage as Per Respondents' Qualification

Qualification	N	Mean	Std. Deviation	Std. Error Mean
BS	127	3.88	.652	.058
MS/M Phil	38	4.04	.898	.146

Differences between the purposes of Internet usage as per qualification

A one-way analysis of variance (ANOVA) was conducted to examine whether there were significant differences in overall purpose of internet usage between qualification the two groups. The results indicated that the difference was not statistically significant,

F (1, 163) = 1.50, p = .222.

Table 4.13: Differences Between the Usage of the Internet of the Groups having Different Qualification

Students Groups	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.768	1	.768	1.502	.222
Within Groups	83.336	163	.511		
Total	**84.104**	**164**			

Barriers in the Use of Internet

Participants rated various challenges associated with internet use in academic and professional contexts. Table

4.9 presents the means and standard deviations for each item.

The most prominent challenge identified was *digital distractions* (M = 3.83, SD = 1.15), followed closely by *privacy and security concerns* (M = 3.79, SD = 1.11) and *information overload* (M = 3.78, SD = 1.18). Other significant issues included *power supply problems* (M = 3.78, SD = 1.08), *internet restrictions* (M = 3.77, SD = 1.13), and *illiteracy of technology* (M = 3.76, SD = 1.13). Participants also noted *disability and accessibility issues* (M = 3.76, SD = 1.07), *slow internet speed* (M = 3.73, SD = 1.28), and *browser compatibility issues* (M = 3.73, SD = 1.14) as moderate barriers. Technical difficulties in general (M = 3.72, SD = 1.16) and problems with *finding suitable keywords* for research (M = 3.72, SD = 1.19) were similarly rated. Other challenges included *mobile device limitations* (M = 3.68, SD = 1.16), *limited access to relevant resources* (M = 3.67, SD = 1.10), and *digital literacy skills* (M = 3.67, SD = 1.15). The lowest-rated issue was *not being familiar with websites relevant to one's field* (M = 3.60, SD = 1.18), though it still represented a notable concern. Descriptive statistics were calculated to examine participants' perceived barriers. The sample included 165 participants. The mean score for perceived barriers was M = 3.73, with a standard deviation of SD = 0.70, indicating moderate variability in responses. The standard error of the mean was 0.05, suggesting a precise estimate of the sample mean.

Table 4.14: ***Barriers LIS Students Face in Utilizing the Internet***

Barriers in the Use of Internet		Mean	SD
1.	Digital distractions	3.83	1.146
2.	Privacy and security concern.	3.79	1.109
3.	Information overload	3.78	1.176
4.	Power supply problems	3.78	1.082
5.	Internet restrictions	3.77	1.130
6.	Illiteracy of Technology	3.76	1.126
7.	Disability and accessibility issues	3.76	1.070
8.	Slow internet speed	3.73	1.280
9.	Browser compatibility issues	3.73	1.143
10.	Technical difficulties	3.72	1.157
11.	Finding suitable keywords	3.72	1.192
12.	Mobile device limitations	3.68	1.158
13.	Limited access to relevant resources	3.67	1.095
14.	Digital literacy skills	3.67	1.154
15.	Not familiar with the websites regarding my field	3.60	1.178
Valid N (list wise)		**3.73**	**0.70**

Correlation between the barriers in the use of Internet and the respondents' qualifications

An independent samples analysis was conducted to compare perceived barriers to internet usage between participants with BS and MS/MPhil qualifications. The results indicated that respondents with a BS qualification reported a lower mean score on perceived barriers (M = 3.64, SD = 0.66, N = 127) than those with an MS/MPhil qualification (M = 4.04, SD = 0.75, N = 38).

Table 4.15: ***Relationship Between the Barriers and Qualification of the Respondents***

Qualification	N	Mean	Std. Deviation	Std. Error Mean
BS	127	3.64	.660	.059
MS/MPhil	38	4.04	.747	.121

One-way ANOVA test between Barriers and the students' qualification

A one-way analysis of variance (ANOVA) was conducted to examine the effect of the independent variable on perceived barriers. The results revealed a statistically significant difference between groups, $F(1, 163) = 9.75$, $p = .002$, indicating that the independent variable had a significant effect on barriers. The between-groups sum of squares was 4.52, while the within-groups sum of squares was 75.53.

Table 4.16: *One-way ANOVA test between Barriers and Qualifications f the Respondents*

Groups	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.520	1	4.520	9.753	.002
Within Groups	75.534	163	.463		
Total	80.053	164			

Pearson Correlations Between CGPA and Internet Usage

A Pearson correlation was conducted to examine the relationship between CGPA and Internet usage. The results indicated a small but statistically significant positive correlation between CGPA and Internet usage, r (163) = .16, p = .046. This suggests that as Internet usage increases, CGPA tends to increase slightly as well.

Table 4.17 Pearson Correlations Between CGPA and Attitude Towards Internet

Variable	1	2
1. CGPA	—	.16*
2. Internet usage	.16*	—

Note: N=165.
r = Pearson correlation coefficient.
p < .05 (2-tailed).

Conclusions and Discussion

The purpose was to explore LIS students' attitudes, usage patterns, purposes, and perceived barriers regarding internet use for academic and professional development. The results have provided insights into how demographic and institutional factors influence internet-related behaviors and perceptions among students.

Overall, the results indicate a positive attitude among LIS students towards the internet, with a mean score of 3.91 (SD = 0.72), suggesting that most respondents find the internet beneficial for academic purposes. Respondents strongly agreed that the internet is a reliable source of academic information and provides opportunities to connect with professionals and explore new technologies. These findings are consistent with previous studies that emphasize the growing reliance on digital information resources in higher education, such as Nawaz (2021) reported a significant positive attitude towards the internet she reported that 56% of the responded strongly agreed that internet can be a subsite for books and other print sources of information. Similarly, Desmal et al., (2017) also found a positive attitude towards internet among the universities students at Bahrain he stated that the use if internet brings numerous benefits and opportunities for universities students to support their formally education. More over these findings are aligned with the study of Ali et al., (2022) who found that the use of internet help university student successes academically.

Interestingly, respondents also acknowledged some challenges such as misinformation and moderate replacement of traditional library resources with internet tools. This dual perspective indicates that while students value the convenience and breadth of internet resources, they remain critically aware of its limitations. This critical engagement reflects a relatively mature information-seeking behavior, which is essential in the LIS field.

The findings from the independent samples t-test revealed no significant gender difference in internet usage (p = .625), suggesting that both male and female students engage with the internet similarly. This could indicate a narrowing of the gender gap in digital literacy and access, particularly in the LIS discipline, which historically has shown gender balance in many academic institutions.

Regarding qualification, students enrolled in MS/MPhil programs reported slightly higher mean internet usage than BS students. However, this difference was not statistically significant (p = .222), possibly due to overlapping exposure to internet tools across academic levels or sample size limitations. Nonetheless, the higher average usage among postgraduate students might reflect their deeper involvement in research activities requiring more frequent online information retrieval.

Significant differences were observed across institutions. Students from SUIT and KKKU reported significantly more positive attitudes toward internet usage than those from UOP. The institutional disparity could reflect differences in infrastructure, faculty encouragement, curriculum design, or access to digital resources. This finding underscores the need for equitable ICT resource allocation and internet access across universities to bridge the digital divide.

Students used the internet for a wide range of academic purposes. The highest-rated purposes were accessing the latest information, digital libraries, and online communication. These findings affirm the internet's role as

an essential tool for information retrieval, collaboration, and digital learning in LIS education. These finding are aligned with study of Desmal 2017 and Hasbes et al., 2018 who reported that students use internet for many academic purposes such as form content searching to information integration and used in research and exam etc.

Lower-rated purposes included digital scholarship and publishing, which may indicate that undergraduate students, in particular, have limited exposure to these advanced scholarly activities. This suggests a potential gap in academic training that could be addressed through curriculum reforms that integrate digital publishing and open-access knowledge dissemination into LIS programs.

While the attitude towards internet usage was generally positive, several barriers were identified. The most prominent included digital distractions, privacy and security concerns, information overload, and infrastructure-related issues such as power supply and slow internet speeds.

The statistical analysis further revealed a significant difference in perceived barriers between BS and MS/MPhil students ($p = .002$), with postgraduate students reporting more barriers. This may be due to their higher academic demands and reliance on specialized online resources, where technical or access-related issues become more prominent.

These results imply that while students are capable users of internet technology, they still encounter substantial obstacles that may impact the effectiveness of their online learning and research activities. Universities should consider investing in digital literacy programs, stable internet infrastructure, and awareness about cyber security and information evaluation.

A positive and statistically significant correlation was found between CGPA and internet usage ($r = .16$, $p = .046$), though the strength of the relationship was small. This finding suggests that students who use the internet more frequently tend to have slightly higher academic performance. It aligns with existing literature indicating that effective internet use contributes to better access to academic materials, improved communication with faculty, and enhanced learning outcomes. However, the modest strength of this relationship also indicates that other factors such as study habits, prior academic preparedness, and institutional support may play a more substantial role in academic success. Hence, while promoting internet use is beneficial, it should be complemented by broader academic support strategies. Thess finding are aligned with the previous research such as Nawaz 2021; Ali 2022; herbs 2018; Desmal 2017 and Khan Khan Bhatti 2011 all these researchers have found a significant relationship between the internet use and academic achievement among the students.

Recommendations

In light of the study's findings, the following practical and policy-oriented recommendations are proposed:

1. To enhance ICT Infrastructure, such as the authorities should ensure stable internet connections, backup power systems, and access to online databases across all LIS departments.
2. The university administrations should reduce institutional gaps by providing equal access to digital tools and training across universities to bridge differences in attitudes and capabilities.
3. Invest in Digital Literacy Training such as they should develop workshops' contents and modules that teach students how to critically evaluate online information, manage digital distractions, and safely navigate the internet.
4. Introduce students with academic publishing tools, open access repositories, and digital citation systems early in their academic journey.
5. Promote tasks that require the use of digital libraries, academic databases, and collaborative online tools.
6. Students should adopt time-management and concentration techniques to minimize digital distractions.
7. LIS students must be trained and encouraged to rely on verified academic platforms such as JSTOR, Science Direct, and DOAJ.
8. Conduct longitudinal or mixed-method studies to explore changes in internet usage over time and gain deeper qualitative insights.
9. Examine how specific internet behaviors (e.g., social media use, e-learning platforms) affect academic performance in LIS programs.

Limitations

1. Only three institutions were surveyed, which may limit the generalizability of the findings.
2. Respondents may have over- or under-estimated their internet usage or attitudes due to social desirability bias.
3. The study collects data at one specific point in time, limiting its ability to track changes in behavior or attitudes over a longer period.

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