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A Quantitative Assessment of Information Resource Availability, Service Accessibility, and User Satisfaction in University Libraries

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Abstract- University libraries are important in facilitating academic learning, research and dissemination of knowledge. The paper examines the availability, accessibility, and use of information resources and services available in university libraries using a quantitative research methodology. A questionnaire with a 5-point Likert was used to obtain the data among 150 respondents (students, research scholars, and faculty members). The results further show that print material, including textbooks and reference books, is still very available and extensively used, which demonstrates that it is still very relevant in scholarly practices. E-books and E-journals are examples of digital resources, which show a moderate level of accessibility, which underlines the continued transition to the digital learning environment. The library services analysis indicates that the library has the most effective services which include the traditional services such as the circulation and reference services, but the digital services and remote access services need improvement. Statistical analysis indicates that the significant positive correlation exists between availability of resources and their usage, and service effectiveness has a strong impact on the user satisfaction. Also, the variations in the use of resources within the groups of users highlight the value of adjusting the services to address the different academic needs. The research notes the need to enhance the digital infrastructure, increase user services, and create awareness in order to optimize the business in the library. The findings offer an insight to policy makers, library administrators as well as academic institutions which aim at improving service efficiency and user satisfaction.

Keywords: University libraries, Information resources, Digital resources, Print resources, Library services, User satisfaction, Resource utilization.

1. Introduction

University libraries are key areas of academic education, research and knowledge transfer, where students, research scholars, and faculty members receive important assistance. The libraries of the modern academic world have ceased to be limited to either the physical libraries of books and journals but have developed into the complex information centres, incorporating the old print



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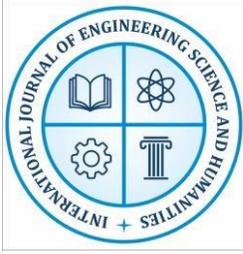
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materials and more modern digital networks. The access to, affordability, and efficient use of these resources are key to the development of academic excellence, research work, as well as continuous learning (Perez-Riverol et al., 2022; Xue et al., 2022; Zieritz et al., 2022). With the spread of digital resources in universities, it is important to comprehend how the resources are shared, what services are provided and how the users interact with such systems to increase the effectiveness of the library as well as user satisfaction. The importance of the university libraries is that they have the capability of offering timely and appropriate information that satisfies the various academic and research requirements of their users. Conventional resources, like textbooks, reference books, printed journals, and newspapers, remain an important part of the promotion of structured learning and the establishment of the basic knowledge. The textbooks provide well-structured and curriculum-based information that will help the students learn the fundamentals of the material, whereas the reference books allow them to find the meaning and explanations as well as the background information easily (Bahader, 2022; Peterson & Iyengar, 2021; Rafiq et al., 2021). The academic environment is enriched with print-based journals and newspapers that provide information on the latest developments in scholarship, contemporary matters, and other special knowledge. Although the need to increase the focus on digitalization is increasing, these print materials are still invaluable to the users who have to use the tactile and easily available materials to facilitate coursework, research and exam preparation (Lederer et al., 2021).



Fig. 1 University library Image

Simultaneously, the advent of digital materials has reshaped the academic environment because it offers remote, flexible access to information. E-books, e-journals, online databases and institutional repositories enable the user to get a plethora of information anytime and anywhere, hence enhance research productivity and self directed learning. These sources allow being accessed by several users at the same time, enrich search possibilities, and offer such sophisticated functions as citation tools, indexing, and cross-referencing. The uptake and use of digital resources, however, is determined by various factors such as availability of subscription, awareness of the users, support of the infrastructure and level of digital literacy among the users. Whereas



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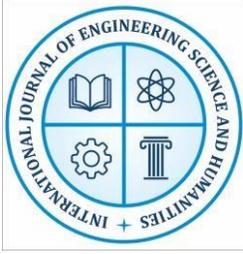
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universities have been busy ensuring that they grow their digital collections, there remains an imbalance on accessibility and usage implying that there is a need to understand how much the resources have been implemented in addressing the expectation of the users and the educational demands (Browning et al., 2021; Menges et al., 2021; Sayers et al., 2021).

In addition to the availability of the resources, library services are considered to be important in the determination of user satisfaction and the use of resources. Circulation, reference service, and interlibrary loans are traditional services that help to access the information efficiently and support academic processes. Circulation services also guarantee orderly lending and lending back of materials to facilitate just access to resources. Reference services assist users to find, choose and use the information in a skillful manner hence improving the quality of research and learning. Interlibrary loans increase the accessibility of resources beyond an individual library so that users can access information at partner institutions and increase the range of accessible information. These services are still required but the services of digital services have become a vital part of the working of the library (Hervieux & Wheatley, 2021; Kiruki, 2021). Online Public Access Catalogs (OPACs), digital library portals and remote access systems facilitate the achievement of the following objectives: information searching, lessening physical dependency and enhancing efficiency in operations. The utility of both traditional and online services is a direct impact on how the users perceive the quality of libraries, which, in turn, affects the level of satisfaction and the involvement in general. The satisfaction and usage trend of the user also furnishes a good understanding of the performance and effect of the library systems. Knowledge of the frequency of the resource utilization, the type of the most preferred materials, the variables that affect the satisfaction will help libraries to adjust their collections, services and infrastructure in accordance with the changing customer requirements. Studies have shown that the availability of resources is positively related to the utilization implying that properly equipped libraries will promote the regular use of scholarly resources. Likewise, service effectiveness, such as timely assistance, accessibility, and user support are also essential factors that lead to user satisfaction, which improves not only the learning experience but also the research experience. The varied usage patterns between the students, research scholars and faculty members further affirm the need to have user-specific approaches in the resource planning and service delivery. Although students might be mostly dependent on the text books and course specific journals, research scholars and faculty members tend to depend on special journals, databases, and online materials in order to facilitate advanced research and academic work (Christensen et al., 2020; Gilliah A corbett, Sarah J Milne, Mark P Hehir, Stephen W Lindow, 2020; Kuek & Hakkennes, 2020; Meier & Hoppe, 2020; Pulido et al., 2020).

The current research paper takes a quantitative research approach to analyze the availability, the access and the use of information resources and services in the library of the universities in a systematic way. Through the use of descriptive and analytical research design, the current study



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gives both a holistic picture of the current library facilities and also give a critical analysis of the effectiveness of the services being offered and the user interaction. The sample population would include undergraduate and post graduate children, research scholars and members of the faculty who represent different ways of looking at it and usage needs. A stratified type of random sampling was used to provide proportional representation among all groups of users to increase the reliability and generalizability of the results. The structured questionnaire on the 5-point Likert scale was used to gather primary data and was created according to the user perceptions on resource availability, service efficiency, accessibility, and satisfaction. The primary data were supplemented with secondary data in the form of library records and institutional reports, which led to triangulation and the results validation (Asemi et al., 2020; Harris et al., 2020; MULYONO et al., 2020; Naeem & Bhatti, 2020; Poon et al., 2020). The study has three main objectives, which are the analysis of the kind of information resources that are accessible, assessment of the efficiency, ease of access of library services, and the examination of user satisfaction and utilization trends. In line with this, the following hypotheses were developed to test the following variables: relationship between resource availability and usage, effect of service effectiveness on user satisfaction and variation in utilization patterns among different user groups. The collected data was analyzed with the help of statistical tools, such as descriptive statistics, correlation, regression, and ANOVA. The analysis presents empirical data of the effects of resource availability and quality of services on engagement, satisfaction, and usage behaviors, and suggests ways of improving the library management and strategic planning. The introduction sets the key role of the university libraries in the promotion of academic success and research productivity. Libraries can be described as complete knowledge centers that integrate both traditional print resources with the digital system and effective services to meet the needs of a variety of users (Stephen & Pramanathan, 2020). The assessment of the availability, accessibility, and utilization of the resources and services as well as user satisfaction will give invaluable information regarding the efficiency of operations, resources planning, and service enhancement. The research conclusions of this study are supposed to be used to help develop policies, improve infrastructure development and strategic interventions that enhance library services and enhance the best academic performance in university institutions.

2. Literature Review

(Sayers et al., 2025) underline the increasing role of digital information repositories in the assistance of academic and research activities. The National Center of Biotechnology Information (NCBI) is a complete site that provides access to a variety of databases, including PubMed, GenBank and PubChem. These databases facilitate effective search, retrieval and integration of scientific data by use of sophisticated tools such as E-utilities. Digital information systems are dynamic and it is evident in the way resources are constantly updated. This paper highlights the significance of convenient and effectively serviced digital repositories in improving the output



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of research. Within the framework of university libraries, such platforms can be used to showcase how digital sources can greatly enhance access to information to help in the shift toward technology-oriented knowledge frameworks.

(Ali et al., 2024) discuss the new position of artificial intelligence in university libraries using a SWOT analysis method. The research shows that AI technologies are being incorporated slowly to augment service provision and interaction with users. Such strengths are higher efficiency and innovation services, whereas the issues are financial limitation, technical skills, and personnel education. There are opportunities in automation and personalized services, and threats are associated with implementation risks and change resistance. The results indicate that despite the fact that AI is in the nascent stages of implementation, it has a high potential to revolutionize the way libraries are run. The present study is timely because it shows that strategic planning and technological preparation is necessary in enhancing library services and customer satisfaction.

(van Melik & Merry, 2023) examine how the role of the public libraries as a social construct has been changing to be more of an information provider. Their research shows that libraries are now becoming places of community where people can interact, collaborate and socialize. The authors demonstrate with the help of long-term observations and qualitative analysis how formal and informal practices help to turn libraries into inclusive spaces. Nevertheless, record keeping and administration of such social functions has been a challenge. The viewpoint is relevant to university libraries as it expands the scope of library role to encompass user experience and interaction in addition to resource provision. It endorses the notion that libraries need to evolve with shifting user expectations both as regards academia and socialization.

(Mubarak & Suomi, 2022) describe the phenomenon of the digital divide, especially the so-called grey digital divide that concerns the older generations of the population. According to the study, access to digital infrastructure cannot be done without access to digital literacy and skills. The inability to use the technology results in the deprivation of the access to the necessary services and the information systems. Though this problem is more evident with older groups, there can also be certain issues with the library users who are not digitally literate. The research is important in the perception of the impediments to the use of digital resources within university libraries. It highlights the need to train users, digital literacy, and have an inclusive access approach as the means of having a successful use of modern library services.

(Nikou et al., 2022) explore how information and digital literacy can determine the acceptance of digital technologies by users. Through a structural equation modeling method, the researchers conclude that the digital literacy has a significant impact on the perceived ease of use and indirectly impacts the intention to adopt technology. Even though it does not directly influence perceived usefulness, it has a significant influence on crafting user attitudes. The results are very applicable to the library of the university where the digital resources and services are becoming increasingly common. According to the study, the user engagement to be achieved with the



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library systems may be improved with the help of improvement of digital and information literacy of the users. This heightens the need of training programs and user support services to achieve maximum use of resources and satisfaction.

3. Research Methodology

The research methodology of this study is quantitative research strategy, which will be used to identify the availability, accessibility and use of information resources and services in university libraries. The section identifies the systematic framework that aids in the investigations of the availability, accessibility and use of information resources and services in university libraries. The study has adopted a quantitative research design to produce objective, reliable and statistically valid results that are in line with the study objectives. The methodology is organized in a way that it is scientifically rigorous, accurate, and generalizable of findings. It is based on the descriptive, analytical research design to understand both the status quo and functional efficiency of the library resources and services. The section also outlines the objectives of research, hypotheses, study population, sampling procedures, data collection procedures, variables, and statistical tools to be used in the analysis. This is a broad methodology which enables a detailed assessment of library systems and their influence on the levels of user satisfaction and use patterns.

3.1 Research Objectives

The present study is guided by the following research objectives:

1. To examine the types of information resources available in university libraries, including print, digital, and electronic resources.
2. To evaluate the effectiveness and accessibility of library information services provided to students, research scholars, and faculty members.
3. To assess user satisfaction and utilization patterns of available library resources and services.

3.2 Research Hypotheses

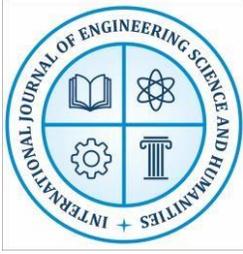
Based on the above objectives, the following null and alternative hypotheses have been formulated for empirical testing:

Hypothesis 1

- **H₀₁ (Null Hypothesis):** There is no significant relationship between the availability of information resources and their utilization by users.
- **H₁₁ (Alternative Hypothesis):** There is a significant relationship between the availability of information resources and their utilization by users.

Hypothesis 2

- **H₀₂ (Null Hypothesis):** The effectiveness and accessibility of library services do not significantly influence user satisfaction.



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- **H1₂ (Alternative Hypothesis):** The effectiveness and accessibility of library services significantly influence user satisfaction.

Hypothesis 3

- **H0₃ (Null Hypothesis):** There is no significant difference in the utilization patterns of library resources among students, research scholars, and faculty members.
- **H1₃ (Alternative Hypothesis):** There is a significant difference in the utilization patterns of library resources among students, research scholars, and faculty members.

These hypotheses provide a clear framework for statistical analysis and enable objective evaluation of relationships and differences among key study variables.

3.3 Research Design

The research design adopted is descriptive and analytical research design. The descriptive dimension is concerned with the identification and documentation of the kind of information resources and services that exist in the library of universities. It gives a detailed report on the available facilities such as print collections, electronic resources and ICT infrastructure. The analytical component, in its turn, measures the efficiency, availability, as well as the use of such resources and services. It looks at how variables like availability, accessibility and user satisfaction relate to one another. This integrated design allows extensive description as well as critical analysis to have a comprehensive view of library systems and how they perform regarding addressing user needs.

3.4 Study Area and Population

The research is carried out in chosen libraries of universities, and this reflects the variety in the academic contexts. These libraries play the role of knowledge hubs which facilitate teaching, learning and research functions. The target population will consist of the main consumers of university library services such as the undergraduate and post graduate students, research scholars and faculty members. The choice of these groups was based on the fact that they consume library resources in an active manner, whether through academic or research work. Their views are an informative contribution to the sufficiency, availability, and efficiency of services in libraries. This, by having many categories of users, makes the study have a holistic insight into the usage patterns and level of satisfaction among different academic sets.

3.5 Sampling Technique and Sample Size

Stratified random sampling method has been used to guarantee the representation of all groups of users in the population in a fair manner. Three categories students, research scholars, and faculty members were separated into diverse population and randomly selected samples were taken thereof. The complete sample will comprise 150 people, the distribution will look like this: 90 students, 30 research scholars, and 30 faculty members. This ratio indicates the proportion of each group of users in the academic setting and spreads them evenly. Stratified sampling helps



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in increasing the reliability and validity of findings since it minimizes sampling bias and makes sure that diverse views are appropriately reflected.

3.6 Data Collection Methods

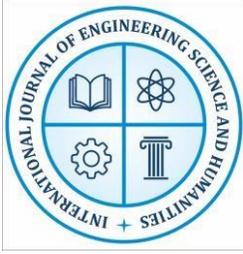
The research is based on the primary and secondary data. Structured questionnaire has been used to collect primary data; the questionnaire is crafted towards this research. The questionnaire will be designed on the 5-point Likert scale, 1 (Strongly Disagree) to 5 (Strongly Agree), with the respondents being able to describe their perceptions in quantitative terms. The questionnaire is split into major areas including: (i) resources availability (print, digital and electronic), (ii) efficacy and accessibility of library services, and (iii) user satisfaction and utilization pattern. This method of data collection is systematic making the answers similar and comparable. The library records, institutional reports, and official websites have been engaged in the secondary data collection to supplement and confirm the primary data. The primary and secondary sources supplement each other and add more credibility to the study.

3.7 Variables of the Study

There are independent and dependent variables in the study to be able to analyze the relationships and make meaningful conclusions. The independent variables are the category of the information resources (print, digital and multimedia), the library service (circulation, reference and digital services), and the accessibility characteristics (timings, support services and infrastructure). The dependent variables include the user satisfaction, the frequency of using the resources, and the perceived effectiveness of the services. The availability and accessibility of resources and services make a difference in these variables. Through the analysis of the relationship between these variables, the study will determine the important variables that define user satisfaction and successful use of library systems.

3.8 Data Analysis Techniques

Appropriate statistical techniques have been used to analyse the collected data in order to make it accurate and valid. The data has been summarized using descriptive statistics like mean, percentage, and frequency distribution which have been used to provide a general picture about the availability of resources, the effectiveness of their services, and the level of user satisfaction. Moreover, comparative analysis has also been carried out to conduct the differences between the different groups of the users such as students, research scholars and faculty members. This aids in determining discrepancies on the patterns of utilization and levels of satisfaction. The hypothesis testing has been conducted by using appropriate statistical techniques to test the relationships between variables and confirm the hypotheses proposed. Statistical software (MS Excel and SPSS) has been used to conduct the analysis, which makes overcoming the obstacles on the way of data processing, tabulation, and interpretation easier. Such methods of analysis have ensured that the results are statistically sound and on a valid basis of drawing conclusions and recommendations.



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3.9 Ethical Considerations

This research is done within the existing ethical standards that help to guarantee the integrity and credibility of the research process. The respondents were fully involved in the study and informed consent was obtained before data collection. All respondents were given an assurance of confidentiality and anonymity and their personal details were never disclosed or utilized in any other way other than research purposes. The data obtained were analyzed only and kept in secure places to avoid unauthorised access. Caution was observed to ensure that there was no bias, misrepresentation, and manipulation of data. All secondary sources were also acknowledged accordingly in the study to ensure that academic dishonesty was not compromised, and plagiarism was avoided.

4. Results and Discussion

This section includes the analysis and interpretation of data gathered on the respondents to assess the availability, accessibility and use of information resources and services in library within the university. The results have been presented based on the study objectives and backed by statistical tools to give a clear and reliable presentation. The outcomes give information about the perceptions of the users, the effectiveness of the services, and the level of the user satisfaction, based on which the substantial discussion and conclusions may be obtained.

4.1 Data analysis

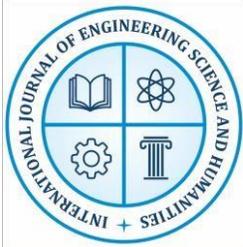
The section will feature the analysis and interpretation of data gathered through response to the respondents to determine the availability, effectiveness, access, and use of information resources and services at university libraries. The descriptive statistical methods of the analysis include percentages and mean scores which help in providing a clear picture of the perceptions of the users. The data are systematically presented in terms of the research objectives so that it is separated logically and is clear. All the objectives are discussed with the help of the corresponding tables and key findings are interpreted. By means of such an organized analysis, it is possible to make significant conclusions about the library work and prove the assumptions of the research.

Objective 1: To examine the types of information resources available in university libraries

This purpose is aimed at analyzing the kind of information resources that are offered in university libraries such as print, digital, multimedia resources. The analysis determines the level of availability and accessibility of these resources, depending on the response of the user. The findings are provided in Table 4.1 to Table 4.3 and indicate that different resources that contribute to academic learning and research studies are distributed and sufficient.

Table 4.1: Availability of Print Resources

Resource Type	Highly Available (%)	Moderately Available (%)	Not Available (%)	Mean
Textbooks	85	10	5	4.40



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Reference Books	80	15	5	4.30
Printed Journals	70	20	10	4.05
Newspapers/Magazines	65	25	10	3.95

Table 4.1 indicates that print resources are very easy to access in university libraries with the greatest availability rating going to the textbooks (85) and reference books (80). Printed journals and newspapers also reveal high representation, but a bit less than core academic materials. The averages of over 4.0 show that there is high availability and dependence on print resources. These results are indicative that the old materials remain important in assisting academic studies and research even though the digitalization process is on the rise.

Table 4.2: Availability of Digital Resources

Resource Type	Highly Available (%)	Moderately Available (%)	Not Available (%)	Mean
E-books	68	20	12	4.00
E-journals	65	22	13	3.95
Online Databases	60	25	15	3.85
Institutional Repository	55	28	17	3.75

Table 4.2 shows that e-books (68% and e-journals (65%), are popular online resources found in university libraries. Online databases and institutional repositories however have comparatively reduced availability, an indication of potential constraints of subscriptions and digital infrastructure. The average scores (3.75 to 4.00) indicate that there is moderate to high access to digital resource. This brings out a transition of gradual change to digital information systems yet more needs to be done in the effort of improving wholesome access of sophisticated electronic resources.

Table 4.3: Availability of Multimedia and ICT Resources

Resource Type	Highly Available (%)	Moderately Available (%)	Not Available (%)	Mean
Audio-Visual Materials	50	30	20	3.60
Computer Systems	72	18	10	4.10
Internet/Wi-	75	15	10	4.20



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Digital Labs	45	30	25	3.50

Table 4.3 provides the availability of multimedia and ICT resources with the highest availability represented by internet/Wi-Fi (75%) and computer systems (72%). On the contrary, audio-visual resources and digital laboratories are relatively less accessible, which signifies infrastructural restriction. The findings indicate that there are well-developed basic ICT facilities to facilitate digital access, but multimedia facilities remain at an immature stage. This brings out the fact that the technological infrastructure to promote modern learning and research should be improved.

Objective 2: To evaluate the effectiveness and accessibility of library information services

This measure gauges the level of efficiency and accessibility of library information services to users. It looks into conventional and online services as well as user support solutions. The analysis is contained in Table 4.4 to 4.6 and addresses the efficiency with which these services are able to meet the needs of the users. The results assist in knowing the strengths and areas to improve in service delivery in university libraries.

Table 4.4: Effectiveness of Traditional Library Services

Service Type	Highly Effective (%)	Moderately Effective (%)	Low Effectiveness (%)	Mean
Circulation Services	85	10	5	4.45
Reference Services	75	15	10	4.15
Interlibrary Loan	65	20	15	3.90

Table 4.4 discloses that the conventional library services are quite effective, that is, circulation services (85%), reference services (75%), both having a high mean score of above 4.0. Interlibrary loan services demonstrate mediocre performance, which means that they can be improved. These results show that traditional library services are still effective and satisfy the expectations of users. These services have a high success rate which shows the importance of such services in helping achieve access to information and aid academic practices in university libraries.

Table 4.5: Effectiveness of Digital Library Services

Service Type	Highly Effective (%)	Moderately Effective (%)	Low Effectiveness (%)	Mean
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OPAC (Online Catalogue)	70	20	10	4.10
Digital Library Portal	65	25	10	3.95
Remote Access Services	58	27	15	3.80

Table 4.5 establishes that digital library resources like OPAC (70%), digital library portals (65%), etc. are moderately effective, and the mean scores are near to 4.0. Nevertheless, remote access services demonstrate a comparatively lower performance, which implies the presence of potential technical or accessibility barriers. The findings indicate that although digital services are becoming a part and parcel of the library systems, their complete capabilities are not being utilized fully. The effectiveness of digital library services can also be improved with respect to improving system usability and technical support.

Table 4.6: Accessibility and User Support Services

Service Type	Highly Accessible (%)	Moderately Accessible (%)	Poor Accessibility (%)	Mean
Library Timings	80	15	5	4.35
User Orientation Programs	55	25	20	3.70
Staff Assistance	72	18	10	4.10
Online Help/Support	60	25	15	3.85

Table 4.6 demonstrates that library time (80 percent) and staff support (72 percent) are quite accessible and highly rated by the users, and the mean scores are high. On the other hand, user orientation programs and online-help services are relatively less accessible, which shows the loopholes in the user support systems. These results can be interpreted to mean that simple accessibility aspects are acceptable, but there is need to do more to achieve the necessary user guidance and digital support services which are critical in improving the overall user experience in the current library settings.



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Objective 3: To assess user satisfaction and utilization patterns

This goal will measure the level of user satisfaction and usage trends of the existing library resources and services. It examines the frequency of resource utilization and their satisfaction with users. The findings have been shown in Tables 4.7 to 4.9 and they give information on user preferences, user behavior as well as general understanding about the library services in terms of serving academic and research needs.

Table 4.7: Frequency of Resource Utilization

Resource Type	Frequently Used (%)	Occasionally Used (%)	Rarely Used (%)	Mean
Print Books	75	15	10	4.20
E-books	65	20	15	3.95
Online Databases	60	25	15	3.85

Table 4.7 means that print books (75%) are the most common used resources next to e-books and online databases. The average scores indicate that there are shared patterns of usage of the various types of resources. Even though existence of digital resources is being used, its consumption is a bit less than that of print materials. This is a period of transition where users use both the traditional as well as the digital resources. Creating more awareness and making digital resources more accessible can also contribute to their increased use in the academic environment.

Table 4.8: User Satisfaction with Resources

Parameter	Highly Satisfied (%)	Moderately Satisfied (%)	Dissatisfied (%)	Mean
Availability of Resources	78	15	7	4.25
Quality of Resources	72	18	10	4.10
Relevance to Needs	70	20	10	4.05

Table 4.8 records a great user satisfaction on availability of resources (78%), quality, and relevance. Mean scores surpassing 4.0 show that the users are more or less pleased with the materials that the university libraries offer. The most important factor that has an effect on satisfaction is availability. These results indicate that libraries are well satisfying the expectations



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of their users but the resources quality and relevance has to be constantly improved to ensure that user satisfaction levels are maintained and improved.

Table 4.9: Overall Satisfaction with Library Services

Parameter	Highly Satisfied (%)	Moderately Satisfied (%)	Dissatisfied (%)	Mean
Service Efficiency	75	15	10	4.15
Accessibility of Services	70	20	10	4.05
Staff Behavior	78	12	10	4.20
Overall Satisfaction	74	16	10	4.12

Table 4.9 means that the users are very satisfied with the library services especially the staff behaviour (78%) and the efficiency of the services (75%). Availability of services also has a positive response but by a low margin. The total mean score of the satisfaction (4.12) is a powerful positive evaluation of the library services. These findings point to the fact that human contact and efficient service provision are in the centre of user satisfaction, and both technical and interpersonal elements of library management are important.

4.2 Hypothesis Testing

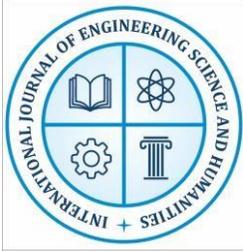
This section presents the statistical testing of hypotheses formulated to examine relationships and differences among key study variables. Inferential statistical techniques such as correlation, regression, and ANOVA have been applied to validate the proposed hypotheses. The results provide empirical evidence regarding resource availability, service effectiveness, and user utilization patterns in university libraries.

H₀₁: There is no significant relationship between the availability of information resources and their utilization by users.

H₁₁: There is a significant relationship between the availability of information resources and their utilization by users.

Table 4.10: Correlation Analysis between Resource Availability and Utilization

Variables	Pearson Correlation (r)	Significance (p-value)	Result
Availability vs Utilization of Resources	0.68	0.001	Significant



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The correlation analysis results show that there is a strong positive correlation between the availability of information resources and the use of the information resources by the users. The Pearson correlation value ($r = 0.68$) indicates that the higher the resources are available, the greater is the usage by the students, research scholars and the members of the faculty. The p-value (0.001) is less than the usual significance level of 0.05 and therefore, it can be concluded that this relationship is statistically significant. This means that libraries that are properly equipped with various resources attract more activities and utilization by the users. The conclusions demonstrate that proper and relevant collections need to be maintained to increase utilization patterns. Thus, the null hypothesis is rejected, and an alternative one is accepted.

Hypothesis 2 Testing

H0₂: The effectiveness and accessibility of library services do not significantly influence user satisfaction.

H1₂: The effectiveness and accessibility of library services significantly influence user satisfaction.

Table 4.11: Regression Analysis between Service Effectiveness and User Satisfaction

Variables	Beta Coefficient (β)	t-value	Significance (p-value)	Result
Service Effectiveness → Satisfaction	0.72	9.45	0.000	Significant

The findings of the regression analysis show that library service effectiveness and accessibility have a strong and positive effect on user satisfaction. It has a beta coefficient ($= 0.72$) which implies that the effect is strong implying that when service quality improves, the level of satisfaction also improves in the direct relation. The t-value (9.45) and p-value (0.000) are high which indicates that this relationship is statistically significant. This implies that effective services, including circulation, digital access, and user support, are very important in influencing user perceptions. The results have highlighted the need by libraries to invest in the enhancement of both analogous and electronic service delivery systems. The null hypothesis is thus rejected and the alternative hypothesis is accepted which confirms that service effectiveness has a significant effect on user satisfaction.

Hypothesis 3 Testing

H0₃: There is no significant difference in the utilization patterns of library resources among students, research scholars, and faculty members.

H1₃: There is a significant difference in the utilization patterns of library resources among students, research scholars, and faculty members.



Table 4.12: ANOVA Analysis of Resource Utilization among User Groups

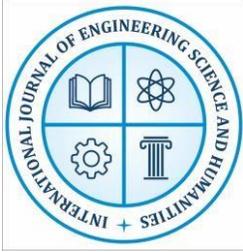
Source of Variation	Sum of Squares	df	Mean Square	F-value	Significance (p-value)	Result
Between Groups	18.45	2	9.22	5.67	0.004	Significant
Within Groups	238.60	147	1.62			
Total	257.05	149				

The ANOVA test has shown a statistically significant difference in the usage of library resources between students, research scholars, and the faculty members. The F-value (5.67) with the p-value of 0.004, which is below 0.05, shows that the difference between the usage of various user groups is significant. This implies that individual groups possess unique information requirements and usage behavior depending on the requirements of their academic and research studies. Students will be more dependent on textbooks and faculty and researchers will make use of journals and databases. The study findings reveal that libraries should integrate user-based approaches to the planning of resources and service provision. As such the null hypothesis is rejected and the alternative hypothesis is accepted.

4.3 Interpretation of Results

The general results of the research are that the university libraries are functioning in a hybrid model that combines both the traditional and digital resources. Printed material is the most available where textbooks (Mean = 4.40; 85% highly available) and reference books (Mean = 4.30; 80% highly available) are the dominant ones as a testament to their still being important in the academic field. Printed journals (Mean = 4.05) and newspapers (Mean = 3.95) are also represented in high numbers. The use of digital resources is increasing with e-books (Mean = 4.00; 68%), e-journals (Mean = 3.95; 65%), and online databases (Mean = 3.85) and institutional repositories (Mean = 3.75) are relatively low.

Concerning services, circulation (Mean = 4.45; 85%) and reference services (Mean = 4.15) are very effective whereas interlibrary loan (Mean = 3.90) performs in mediocre ways. Digital services like OPAC (Mean = 4.10) and library portals (Mean = 3.95) are fair with gaps being reported in remote access (Mean = 3.80). The factors related to accessibility like library timings (Mean = 4.35) and staff assistance (Mean = 4.10) are good, but such factors as orientation programs (Mean = 3.70) require improvement. The patterns of the user utilization indicate that most of the books are used by the user print books (Mean = 4.20; 75%), then e-books (Mean = 3.95). There are high levels of satisfaction especially resource availability (Mean = 4.25) and the general level of satisfaction (Mean = 4.12). Nevertheless, a decreased digital usage implies that awareness, infrastructure, and training of the users have to be enhanced.



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5. Conclusion

The current research gives a detailed discussion of the availability, accessibility and usage of information resources and services in university libraries. The results have shown that libraries are operating under a hybrid model in which the traditional print resources still prevail with the emergence of digital resources. Printed materials, especially textbooks (85%; Mean = 4.40) and reference books (80%; Mean = 4.30), are still the most available ones, and it is clear that they will continue to be relevant in the academic setting. Simultaneously, the digital resources, like e-books (68% Mean = 4.00) and e-journals (65% Mean = 3.95) have been adopted more often, but are still relatively less used. The research also shows that traditional library services and in particular the circulation services (Mean = 4.45) are very effective whereas digital services have moderate performance. Statistical findings prove the existence of a strong correlation between the availability and utilization of the resources ($r = 0.68$), and the eminent impact of the service effectiveness on the user satisfaction ($B = 0.72$). Also, the outcomes of ANOVA ($F = 5.67$, $p = 0.004$) indicate the existence of significant disparities in the usage patterns of students, research scholars, and faculty members. Although overall satisfaction is high (Mean = 4.12), issues of digital accessibility, remote services, and educating the user remain. Thus, the paper ends with a conclusion that the digital infrastructure, user awareness, and support services should be improved to ensure the maximum effect of libraries and address the changing academic requirements.

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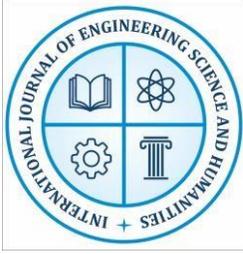


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