

# Academic Advancement: Libraries' Integral Support for Research in Public Sector Universities of Khyber Pakhtunkhwa, Pakistan

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**Abstract:** This research article explores into the pivotal role of libraries in enhancing research activities within the public sector universities of Khyber Pakhtunkhwa, Pakistan. The study's objectives encompassed assessing current research services, evaluating technology integration, and examining collaborative spaces within these libraries. A quantitative research approach was employed, surveying eighty library professionals across thirty-four universities. Findings revealed a diversified demographic profile among respondents, emphasizing the need for tailored research support. Analysis of digital resources highlighted moderate satisfaction with research databases but a positive perception of data management services. Technology integration, including interlibrary loan systems and institutional research repositories, showcased promising levels of effectiveness. Collaborative spaces within libraries, along with IT support and research advisory services, were deemed valuable for research endeavors. Recommendations emerged to enhance digital resources' effectiveness, optimize technology integration, and expand collaborative spaces. Improving IT support, empowering research advisory services, and promoting research outreach initiatives were also suggested. Continuous evaluation and adaptation mechanisms were emphasized to create a dynamic and effective research support ecosystem within university libraries. This study contributes essential insights into enhancing research support services, fostering collaboration, and promoting scholarly excellence within university libraries in Khyber Pakhtunkhwa, Pakistan.

**Keywords:** Research; Library Resources; Library Services; Public Sector Universities; Research Services.

## 1. Introduction

Research forms the bedrock of academic inquiry, driving innovation, advancing knowledge frontiers, and addressing societal challenges [1]. It is a methodical procedure of examining, scrutinizing, and comprehending with the goal of producing novel understandings, confirming current beliefs, or creating useful solutions [2]. Research encompasses a broad range of activities, including basic research that investigates theoretical concepts, applied research that aims to find practical uses, and interdisciplinary research that connects several fields of study [3]. Research is crucial in academia as it shapes intellectual discourse, contributes to academic debates, and promotes a culture of critical thinking and evidence-based decision-making [4]. Research, whether carried out in laboratories, outdoor settings, or libraries, is essential for the development of human knowledge and the growth of civilization [5].

The role of university libraries in promoting research

University libraries function as dynamic centers that fulfill a variety of roles in advancing research inside academic organizations [6]. In addition to their conventional role of granting access to intellectual resources, libraries actively contribute to the promotion of research through various projects and services. They carefully choose and organize vast amounts of scholarly literature, journals, databases, and digital archives, guaranteeing that researchers and scholars can easily access a wide range of information in many

fields of study [7]. Furthermore, libraries offer targeted assistance in managing research data, facilitating scholarly communication, ensuring copyright adherence, and promoting information literacy [8]. This equips researchers with the necessary resources and expertise to carry out thorough and ethical research. In addition, libraries function as collaborative environments where academics can utilize state-of-the-art technologies, participate in multidisciplinary discussions, and attend research-oriented events and workshops [9]. University libraries have a crucial role in promoting research excellence, sharing knowledge, and supporting academic success within the scholarly community by creating a favorable atmosphere for inquiry, discovery, and innovation [10]. The research gap addressed in this study focuses on the changing environment of library services in public sector institutions of Khyber Pakhtunkhwa in light of rapid technological improvements. Libraries are evolving to suit the evolving demands of users and taking use of developing technologies. However, it is important to further explore their function as catalysts for research innovation. This entails comprehending the consequences of technology advancements on information resources, the crucial assistance that libraries offer for academic studies and research, and the future direction of academic and research support services in the public sector universities in Khyber Pakhtunkhwa.

### 1.1. Statement of the Problem

In order to fully grasp the facilities and services that libraries offer to researchers in public sector universities in Khyber Pakhtunkhwa. It is important to recognize the crucial role that libraries play in supporting research and academic pursuits. The current research gap pertains to the insufficient investigation into the precise support mechanisms, resources, and facilities that libraries provide to researchers. This encompasses an evaluation of the availability of scholarly databases, research resources, venues for collaboration, technological framework, and specialized services designed to meet research requirements. This study seeks to examine the role of libraries in supporting research at these universities, specifically looking at the variety and usefulness of the resources offered to researchers to better their academic endeavors and promote innovation.

### 1.2. Objective

The study addressed the following research objectives:

- To assess the current research services in the libraries of Khyber Pakhtunkhwa's public sector universities.
- To examine the incorporation of technology in these libraries to enhance research assistance.
- To evaluate how libraries' collaborative spaces support research collaboration.

### 1.3. Research Questions

Q.1. What is the status of current research services offered in the libraries of public sector universities in Khyber Pakhtunkhwa?

Q.2. How effectively is technology integrated into these libraries to improve research support?

Q.3. In what ways do libraries' collaborative spaces contribute to fostering research collaboration among users?

## 2. Literature Review

Libraries are widely acknowledged as crucial centers for the distribution of knowledge and academic assistance in the realm of higher education [11]. The role of public sector universities in Khyber Pakhtunkhwa, in terms of empowering research and supporting academic activities, is extremely important. This literature review explores important areas including the accessibility of research materials and databases, the significance of collaborative spaces and technology in research collaboration, and the influence of specialized library services on research productivity.

Having access to high-quality research materials and databases is essential for conducting research. The studies conducted by [12] highlight the importance of libraries in granting scholars access to a diverse array of scholarly materials, such as academic journals, books, and databases. Nevertheless, obstacles such as financial limitations and legal restrictions can impede the availability and efficiency of these resources [13]. Hence, it is imperative to evaluate the present condition of accessibility and efficiency in the public universities of Khyber Pakhtunkhwa in order to comprehend the research environment and pinpoint areas that require enhancement.

Libraries' collaborative spaces are crucial for promoting research collaboration and multidisciplinary conversation. The study conducted by [14] emphasizes the beneficial effects of collaborative spaces on the exchange of knowledge and the implementation of novel research methods. Moreover, the incorporation of technology, such as virtual collaboration tools and data visualization platforms, improves the collaborative research process [15]. An assessment of how libraries in Khyber Pakhtunkhwa utilize collaborative spaces and technology to facilitate research cooperation offers valuable insights into effective strategies and potential avenues for improving collaborative research endeavors.

Customized library services designed specifically for researchers greatly enhance their pleasure and productivity in conducting research. Research conducted by [16] reveals that services such as literature search aid, citation management support, and research skills training have a beneficial effect on the efficiency and productivity of the library users. Furthermore, the level of satisfaction that researchers have with library services is directly related to their impression of the extent to which the library provides support for their academic and research objectives [17]. Hence, it is imperative to assess the level of contentment among researchers regarding the specialized library services provided in the public institutions of Khyber Pakhtunkhwa. This evaluation is crucial in determining the efficiency of these services and pinpointing areas that require improvement.

The literature emphasizes the crucial function of libraries in facilitating research endeavors in the public sector universities of Khyber Pakhtunkhwa. This study aims to provide valuable insights into improving the research ecosystem and empowering academic scholars in the region by evaluating the accessibility and effectiveness of research materials and databases, assessing collaborative spaces and technology support, and measuring researcher satisfaction with specialized library services.

### 3. Research Design and Methods

In order to accomplish the goals of the study, a quantitative research survey was carried out. Data based on the census was obtained from the eighty library professionals working at the thirty-four public sector universities, which are located throughout the province. An adopted questionnaire was used for the purpose of data collection. There were three primary sections that were included in the questionnaire: demographic information, research support services, and the services that were considered to be the most helpful for the researchers. Email, Google Docs service, social media platforms, and personal visits were the methods that were utilized to disseminate the questionnaire to the respective responders. A total of sixty-five replies were obtained, all of which were deemed suitable for the study. A statistical program called SPSS 21 was used to determine the mean and standard deviation (SD) values of the data that was obtained. A comparison was made between the findings of the current study and those of previous studies in order to validate the findings.

### 4. Results

Table 1 shows the respondents in this study have a diversified demographic profile, with a wide range of roles and educational backgrounds within the library profession. Out of the participants, Deputy Librarians make up the greatest percentage, accounting for 23.1%, while Assistant Librarians closely follow with 53.8%. The sample consists of Chief Librarians and Associate Librarians, who account for 4.6% and 3.1% of the sample, respectively. Cataloguers/Classifiers make up 15.4% of the population. Regarding professional experience, the largest proportion of respondents (38.5%) possess 6 to 10 years of experience, followed by individuals with 11 to 15 years (30.6%) and those with up to 5 years (15.5%) of experience. A minority of participants possess 16 to 20 years (9.2%) or 20 to 25 years (6.2%) of experience. In terms of educational qualifications, a substantial proportion of respondents had a Bachelor of Science in Library and Information Science/Master of Library and Information Science degree (69.2%), while 23.1% have a Master of Philosophy/Master of Science in Library and Information Science certificate, and 7.7% hold a Doctor of Philosophy in Library and Information Science. Finally, the analysis of the respondents' gender distribution reveals that 84.7% of them are male, while 15.3% are female. This data suggests that the surveyed population is mostly male.

**Table1.** Demographic Information of the respondents

<b>Positioning / Designation</b>	<b>No.</b>	<b>Percentage %</b>
Chief Librarian	03	4.6
Associate Librarian	02	3.1
Deputy Librarian	15	23.1
Assistant Librarian	35	53.8
Cataloguer/ Classifier	10	15.4
<b>Professional Experience</b>		
Up to 5 years	10	15.5
6 - 10 Years	25	38.5
11- 15 years	20	30.6
16 – 20 Years	06	9.2
20 – 25 years	04	6.2
<b>Educational Qualification</b>		
BS-LIS / MLIS	45	69.2
MPhil/MS-LIS	15	23.1
PhD – LIS	05	7.7
<b>Gender</b>		
Male	55	84.7
Female	10	15.3

N=65

#### 4.1. Reliability of the instrument

Table 2 shows the reliability test results for the research article demonstrate a high level of reliability, with a Cronbach's Alpha coefficient of 0.958 across 23 items. This indicates excellent internal consistency among the items measured in the research instrument. A Cronbach's Alpha value above 0.9 signifies strong reliability, suggesting that the items in the instrument consistently measure the same underlying construct [18]. This high level of reliability enhances the credibility and trustworthiness of the research findings, as it indicates that the instrument used in the study is reliable in measuring the variables of interest [19].

**Table 2.** Reliability Statistics

<b>Cronbach's Alpha</b>	<b>No. of Items</b>
.958	23

The focus of this study was to assess the current research services offered by university libraries to support researchers and enhance research activities. Table 3 presents the mean and standard deviation of the responses obtained from the respondents regarding these services. For books on research in print form, the mean effectiveness rating was 3.6923 with a standard deviation of 1.11696, indicating the perceived effectiveness of these resources in supporting research endeavors. Similarly, books on specific subjects in print form received a mean effectiveness rating of 3.7385 with a standard deviation of 1.06473, suggesting

their relevance and usefulness in catering to specialized research needs. In the study of [19], they were of the opinion that the role of printed materials in the enhancement of research cannot be denied.

In terms of digital resources, such as research databases and data management services, the study found a mean effectiveness rating of 2.9385 with a standard deviation of 1.11631 for research databases. This indicates that while these databases are utilized, there is room for improvement in their perceived effectiveness. Similarly, [20] articulated the importance of digital resources and databases in the advancement of research activities. On the other hand, data management services received a mean effectiveness rating of 3.4462 with a standard deviation of 1.11846, reflecting a relatively higher level of satisfaction and perceived effectiveness among the respondents.

These findings highlight the importance of various research services offered by libraries in facilitating research activities. The analysis underscores areas where improvements may be needed, particularly in enhancing the effectiveness of digital resources like research databases, while also acknowledging the strengths and positive perceptions associated with services like data management. Overall, the study contributes insights into the strengths and areas for enhancement within the current landscape of research services provided by these university libraries.

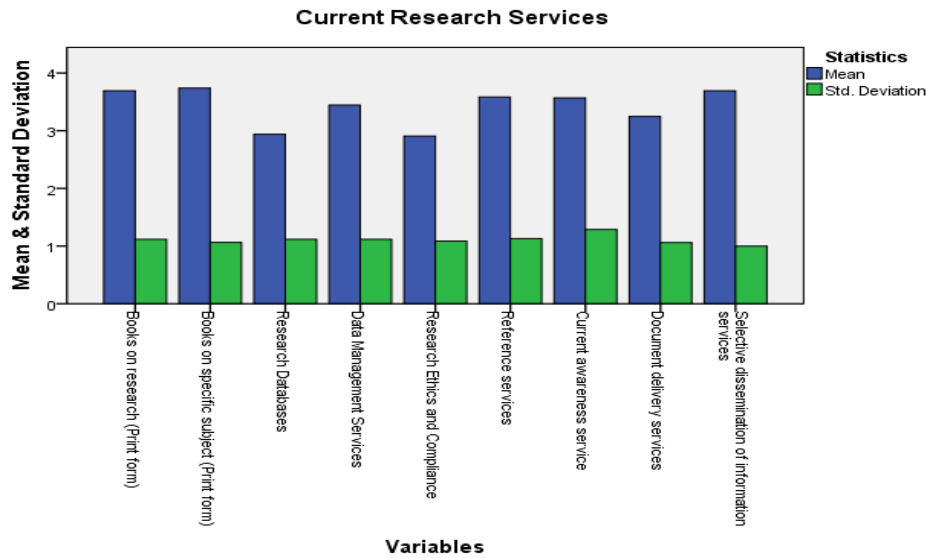
The study delved into the integration of technology within university libraries to enhance research support services. Table 4 presents the data regarding technology integration across various aspects of library services aimed at improving research support.

For interlibrary loan and resource sharing, the mean rating was 3.7846 with a standard deviation of 0.92690, indicating a moderate level of integration and effectiveness in facilitating resource access and sharing among libraries. Similarly, institutional research repositories (IRR) received a mean rating of 3.8154 with a standard deviation of 1.02914, reflecting a positive perception of these repositories as tools for organizing and accessing institutional research outputs. Access to the Higher Education Commission (HEC) digital library was rated with a mean of 3.7077 and a standard deviation of 1.12809, highlighting the importance and utilization of digital resources provided by the HEC for research purposes. Library portals linked to e-repositories specific to disciplines received a mean rating of 3.8154 with a standard deviation of 0.93361, indicating their role in providing targeted research materials and resources.

In terms of statistical and data analysis tools integrated into library services, the mean rating was 3.5846 with a standard deviation of 1.05907, suggesting a moderate level of integration and utilization of such tools for research purposes. Similarly, research support tools, which encompass various digital tools and platforms aiding research activities, received a mean rating of 3.8000 with a standard deviation of 1.00312, indicating their perceived effectiveness in supporting research endeavors within the university libraries.

**Table 3.** Current Research Services

Items	N	Mean	Std. Deviation
Books on research (Print form)	65	3.6923	1.11696
Books on specific subject (Print form)	65	3.7385	1.06473
Research Databases	65	2.9385	1.11631
Data Management Services	65	3.4462	1.11846
Research Ethics and Compliance	65	2.9077	1.08575
Reference services	65	3.5846	1.13044
Current awareness service	65	3.5692	1.28658
Document delivery services	65	3.2462	1.06111
Selective dissemination of information services	65	3.6923	.99880

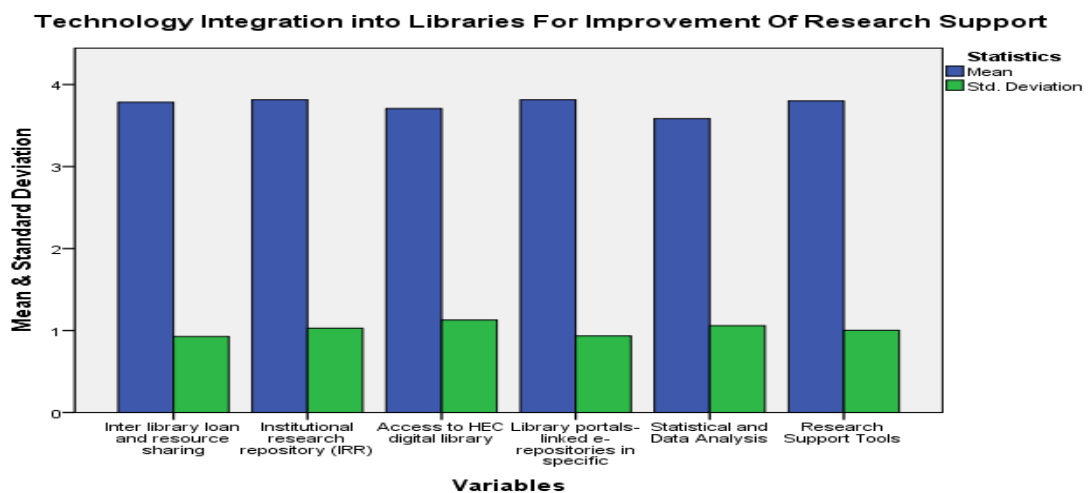


**Figure 1.** Current Research Services

These findings shed light on the extent and perceived effectiveness of technology integration within university libraries, showcasing the role of digital resources and tools in enhancing research support services.

**Table 4.** Technology Integration into Libraries for Improvement of Research Support

Items	N	Mean	Std. Deviation
Inter library loan and resource sharing	65	3.7846	.92690
Institutional research repository (IRR)	65	3.8154	1.02914
Access to HEC digital library	65	3.7077	1.12809
Library portals-linked e-repositories in specific	65	3.8154	.93361
Statistical and Data Analysis	65	3.5846	1.05907
Research Support Tools	65	3.8000	1.00312



**Figure 2.** Technology Integration into Libraries for Improvement of Research Support

The study also examined the collaborative spaces and support services offered by libraries to facilitate research activities. Table 5 presents the data regarding libraries' collaborative spaces and their effectiveness in supporting research. For research collaboration spaces within libraries, the mean rating was 3.7538 with a standard deviation of 1.07574, indicating a positive perception of these spaces as conducive environments for collaborative research endeavors. Similarly, information technology (IT) support services received a mean rating of 3.6923 with a standard deviation of 1.08862, highlighting the importance of IT infrastructure

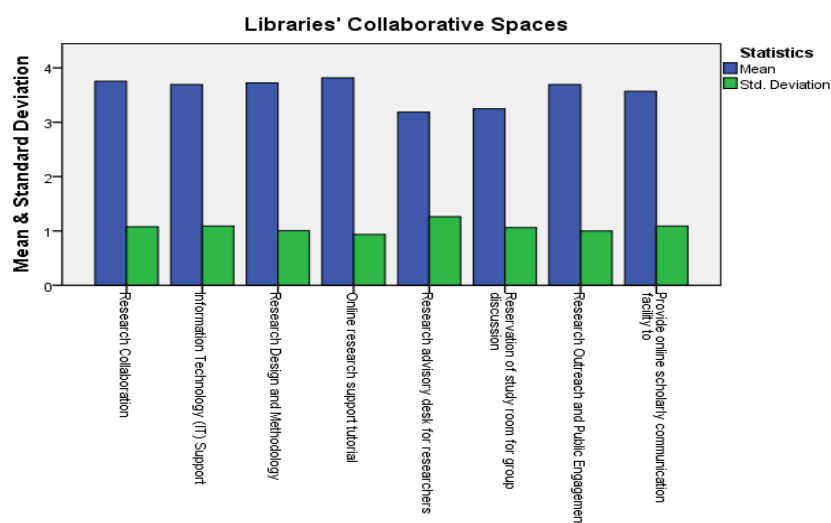
and support in aiding research activities. Regarding research design and methodology support, the mean rating was 3.7231 with a standard deviation of 1.00790, indicating the availability and effectiveness of resources and guidance in research design within library settings. Online research support tutorials were rated with a mean of 3.8154 and a standard deviation of 0.93361, suggesting their role in providing accessible and valuable guidance to researchers.

The study also assessed the effectiveness of research advisory desks for researchers, which received a mean rating of 3.1846 with a standard deviation of 1.26110. This indicates opportunities for improvement in providing personalized and effective advisory services to researchers within libraries. Reservation of study rooms for group discussions received a mean rating of 3.2462 with a standard deviation of 1.06111, highlighting the importance of collaborative and discussion spaces for research activities. Additionally, research outreach and public engagement initiatives were rated with a mean of 3.6923 and a standard deviation of 0.99880, indicating positive perceptions of libraries' efforts in promoting research outreach and engagement. Providing online scholarly communication facilities received a mean rating of 3.5692 with a standard deviation of 1.08928, suggesting the importance and effectiveness of online communication platforms for scholarly purposes within library environments.

These findings provide insights into the effectiveness of collaborative spaces and support services offered by libraries in fostering research activities and promoting scholarly engagement.

**Table 5.** Libraries' Collaborative Spaces

Items	N	Mean	Std. Deviation
Research Collaboration	65	3.7538	1.07574
Information Technology (IT) Support	65	3.6923	1.08862
Research Design and Methodology	65	3.7231	1.00790
Online research support tutorial	65	3.8154	.93361
Research advisory desk for researchers	65	3.1846	1.26110
Reservation of study room for group discussion	65	3.2462	1.06111
Research Outreach and Public Engagement	65	3.6923	.99880
Provide online scholarly communication facility	65	3.5692	1.08928



**Figure 3.** Libraries' Collaborative Spaces

## 5. Discussion

The comprehensive findings of this research shed light on the multifaceted landscape of research services and support within university libraries. The primary aim was to assess and analyze the current state of services aimed at sustaining research activities and aiding researchers in their endeavors. Through meticulous data collection and analysis, the study produced valuable insights summarized in Tables 3, 4, and 5.

Table 3 elucidates the perceived effectiveness of traditional and digital resources offered by these libraries. Notably, the mean effectiveness ratings for print form research materials and specific subject resources underscore their relevance and utility in catering to diverse research needs. However, the study also identifies areas for enhancement, particularly in improving the perceived effectiveness of digital resources like research databases. In a similar study, [21] highlights that university students prioritize the accessibility advantage of e-books for research purposes. Among e-book formats, Portable Document Format (PDF) is the most commonly preferred by students, and computers are their preferred medium for accessing e-books. In recent years, several studies have shed light on various aspects of library services crucial to supporting academic research. [22] conducted a comprehensive analysis of research databases, highlighting their significant impact on academic productivity. [23] delved into the realm of data management services, emphasizing their role in enhancing research outcomes by ensuring efficient handling and utilization of research data. [24] provided insights into best practices in research ethics and compliance within academic institutions, addressing vital concerns in this area.

Regarding reference services, [24] conducted a study examining their effectiveness in supporting research activities, contributing valuable findings to this field. [25] explored the implementation and impact of current awareness services in academic libraries, shedding light on their importance in keeping researchers informed about the latest developments in their fields. Additionally, [26] evaluated document delivery services in university libraries, focusing on their efficiency and user satisfaction, which are crucial aspects of research support services.

Lastly, [27] examined the role of selective dissemination of information services in facilitating access to relevant research materials for users, highlighting the importance of tailored information dissemination strategies in academic settings. These studies collectively provide a comprehensive understanding of key library services essential for supporting and advancing academic research endeavors.

Moving forward, Table 4 delves into the integration of technology within library services, showcasing the varying degrees of effectiveness across different aspects. Noteworthy is the positive perception of interlibrary loan and resource sharing, institutional research repositories, and digital library access, indicating the pivotal role of digital resources in modern research practices. Additionally, the study's assessment of statistical and data analysis tools, alongside research support platforms, accentuates their perceived effectiveness in supporting research endeavors.

Recent studies have extensively explored various aspects crucial to enhancing research support in academic libraries. Interlibrary loan and resource sharing have been a subject of interest, with researchers like [28] investigating their impact on access to diverse resources and collaboration among institutions. The significance of institutional research repositories (IRR) has been highlighted by [29], emphasizing their role in preserving and disseminating scholarly outputs within academic communities. Access to digital libraries, particularly through platforms like the Higher Education Commission (HEC) digital library, has been studied by [30], focusing on the benefits and challenges associated with such access for researchers.

Library portals linked to e-repositories have also garnered attention, with studies by [31] examining their integration and usability for accessing scholarly content efficiently. Statistical and data analysis tools have been explored by [32], discussing their importance in supporting researchers' data-driven inquiries and analyses. Moreover, research support tools, as highlighted by [33], play a vital role in providing researchers with the necessary resources and assistance for their projects, contributing significantly to research quality and productivity in academic settings.

Table 5 broadens the scope by evaluating collaborative spaces and support services within libraries. The findings highlight the positive reception of collaborative research spaces, IT support services, and online research support tutorials, emphasizing their significance in facilitating collaborative research and providing essential guidance to researchers. Furthermore, the study sheds light on areas for improvement,



such as enhancing research advisory services and optimizing study room reservations for group discussions, to further foster a conducive research environment.

Recent research has extensively examined key areas crucial for fostering a conducive research environment and supporting researchers in various capacities. Research collaboration has been a focal point, with studies by [34] investigating its impact on knowledge exchange and interdisciplinary collaboration among researchers. Information Technology (IT) support has also been a subject of interest, with researchers like [35] discussing the role of IT infrastructure in enhancing research capabilities and facilitating data management and analysis.

Research design and methodology have been thoroughly explored, with studies by [36] exploring into best practices and innovative approaches in research design, contributing to methodological advancements in the academic community. Online research support tutorials have gained attention, with [37] examining their effectiveness in providing researchers with the necessary skills and resources for conducting research effectively in digital environments.

The establishment of research advisory desks for researchers has been studied [38], focusing on their role in providing personalized guidance and support to researchers throughout the research process. Furthermore, the reservation of study rooms for group discussions has been investigated by [39], highlighting the importance of collaborative spaces in fostering research discussions and brainstorming sessions among researchers.

Research outreach and public engagement initiatives have been a significant area of focus, with studies by [40] exploring strategies for engaging with the public and disseminating research findings effectively. Additionally, providing online scholarly communication facilities, as emphasized by [42], is crucial for facilitating knowledge dissemination and collaboration among researchers in digital scholarly environments [41].

Overall, this research not only assesses the current landscape of research services in university libraries but also identifies strengths, weaknesses, and opportunities for improvement. The insights gleaned from these comprehensive analyses provide a roadmap for libraries to enhance their support mechanisms, better cater to researchers' needs, and foster a culture of scholarly engagement and innovation within academic environments

## 6. Recommendations and Conclusion

To improve the overall research support environment within university libraries, several key recommendations emerge from the study's findings. Firstly, there is a need to enhance the effectiveness of digital resources, particularly research databases, by ensuring comprehensive coverage, user-friendly interfaces, and streamlined data management services.

Additionally, optimizing technology integration efforts, such as promoting interlibrary loan mechanisms and maintaining institutional research repositories, can further enhance resource access and organization. Collaborative spaces and support services should be optimized by expanding IT support, diversifying collaborative spaces, and empowering research advisory services with personalized guidance and training opportunities. Promoting research outreach and engagement initiatives, alongside utilizing online scholarly communication facilities effectively, can foster collaboration, networking, and knowledge dissemination among researchers.

Continuous evaluation and improvement through regular feedback mechanisms are essential to adapt services to evolving research needs, technological advancements, and user preferences, ensuring a dynamic and effective research support environment within university libraries.

### 6.1. Conclusion

In conclusion, this study provides valuable insights into the current state of research services and support within public sector university libraries of Khyber Pakhtukhwa. The findings highlight the perceived effectiveness of both traditional and digital resources, emphasizing their importance in supporting research endeavors. However, areas for improvement are identified, particularly in enhancing the effectiveness of digital resources like research databases and optimizing technology integration efforts. Collaborative spaces and support services play a crucial role in fostering collaborative research and providing essential guidance to researchers, underscoring the need for continuous enhancement in these areas. Recommendations include strengthening IT support, expanding collaborative spaces, empowering

research advisory services, promoting research outreach and engagement, and implementing regular evaluation and improvement mechanisms. These recommendations aim to create a dynamic and effective research support ecosystem within university libraries, ultimately fostering a culture of research innovation, collaboration, and scholarly excellence.

**References**

1. Young, R. A., & Ewing, R. (2020). Types of research Basic Quantitative Research Methods for Urban Planners (pp. 46-60): Routledge.
2. Taherdoost, H. (2022). What are different research approaches? Comprehensive Review of Qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research*, 5(1), 53-63.
3. Mac Naughton, G., & Rolfe, S. A. (2020). The research process Doing early childhood research (pp. 13-34): Routledge.
4. Repko, A. F., & Szostak, R. (2020). *Interdisciplinary research: Process and theory*: Sage publications.
5. May, T., & Perry, B. (2022). *Social research: Issues, methods and process*: McGraw-Hill Education (UK).
6. Ekeh, D., Ojemuyide, C., Eze, C., Ani, M., Igu, O., Okpara, C., & Duru, C. (2023). ROLE OF ACADEMIC LIBRARIES IN RESEARCH DATA MANAGEMENT IN TERTIARY INSTITUTIONS. *Library Philosophy & Practice*.
7. Hotsonyame, G. N. (2023). SIGNIFICANCE OF ACADEMIC LIBRARIES IN RECENT TIMES: A REVIEW OF ARTICLES. *Library Philosophy & Practice*.
8. Doneva, Y., & Angelova, V. (2023). The educational role of the academic library. *Izvestia Journal of the Union of Scientists-Varna. Economic Sciences Series*, 12(2), 260-267.
9. Ali, N., Shoaib, M., & Abdullah, F. (2023). Information literacy and research support services in academic libraries: A bibliometric analysis from 2001 to 2020. *Journal of Information Science*, 49(6), 1593-1606.
10. Öztemiz, S., & Şahin, H. N. (2024). The role of research university libraries in research data management: The case of Türkiye. *Information Development*, 02666669231224430.
11. Kenkebashvili, K. (2023). The role of university libraries in the development of the scientific and research field of the university. " Intercultural Dialogues" *Transactions*, 7.
12. Mwinymbegu, C. M. (2019). The role of libraries and librarians in promoting access to and use of open educational resources in Tanzania: the case of selected public university libraries. *University of Dar es Salaam Library Journal*, 14(2), 53-68.
13. Lewis, D. W., & Orr, K. (2018). The age demographics of librarians and the organizational challenge facing academic libraries.
14. Ozburn, L., Kirk, J., & Eastman, T. (2020). Creating collaborative library spaces through partnerships with campus organizations. *Journal of Library Administration*, 60(6), 600-612.
15. Maceviciute, E. (2014). Research libraries in a modern environment. *Journal of Documentation*, 70(2), 282-302.
16. Gyau, E. B., Liu, J., & Kwakye, O. (2021). Evaluation of user satisfaction with academic libraries services based on students' perspectives. *Open Access Library Journal*, 8(8), 1-17.
17. Cheng, J., & Hoffman PhD, S. (2020). Librarians and administrators on academic library impact research: Characteristics and perspectives. *College and Research Libraries*, 81(3), 538.
18. Rushton, C. H., Hanson, G. C., Boyce, D., Holtz, H., Nelson, K. E., Spilg, E. G., & Robillard, R. (2024). Reliability and validity of the revised Rushton Moral Resilience Scale for healthcare workers. *Journal of advanced nursing*, 80(3), 1177-1187.
19. Gao, Z., Zhang, L., Ma, J., Sun, H., Hu, M., Wang, M., Guo, L. (2023). Reliability and validity of the Chinese version of the self-directed learning instrument in Chinese nursing students. *BMC nursing*, 22(1), 51.
20. Butler, A. M., Nickel, K. B., Overman, R. A., & Brookhart, M. A. (2021). IBM MarketScan research databases. *Databases for pharmacoepidemiological research*, 243-251.
21. Cumaoglu, G., Sacici, E., & Torun, K. (2013). E-book versus printed materials: preferences of university students. *Contemporary educational technology*, 4(2), 121-135.
22. Ren, S., Zhang, Y., Liu, Y., Sakao, T., Huisingh, D., & Almeida, C. M. (2019). A comprehensive review of big data analytics throughout product lifecycle to support sustainable smart manufacturing: A framework, challenges and future research directions. *Journal of cleaner production*, 210, 1343-1365.
23. Marlina, E., & Purwandari, B. (2019). Strategy for research data management services in Indonesia. *Procedia Computer Science*, 161, 788-796.
24. Suthiprapa, K., & Tuamsuk, K. (2022). Users' experiences of reference services in Thai academic libraries. *IFLA journal*, 48(4), 548-566.
25. Akor, S. O., Adaji, I. J., Obedia, O., & Fauziyat, S. O. (2021). Availability of Current Awareness Services in Public Libraries in Katsina State Nigeria. *Library Philosophy and Practice*, 1-18.
26. Saavedra-Alamillas, C., Pacheco-Mendoza, J., García-Meléndez, H. E., Vilchis López, A., Martínez-Camacho, H., Ortiz-Díaz, E. M., & Ortega-Martínez, E. (2020). Document delivering services: a strategy to support research in

- Mexican universities in the pandemic by COVID-19. *Digital Library Perspectives*, 36(4), 337-349.
27. Saeidnia, H., & Hasanzadeh, M. (2022). Designing an operational interactive model for the selective dissemination of information (SDI) in academic libraries (case study: Tarbiat Modares University). *Journal of Knowledge Retrieval and Semantic Systems*, 9(32), 1-34.
  28. Leon, L., & Kochan, C. A. (2021). Collective and creative learning to enhance interlibrary loan. *Journal of Library Resource Sharing*, 30(3-5), 85-94.
  29. Yeo, P. P. (2022). Development of Institutional Repositories in Singapore.
  30. Mr, I. M., & Anmol, R. (2021). HEC Digital Library Resources: Its purpose of Usage and Impact on Teaching and Research Activities in the Universities of Khyber Pakhtunkhwa-Pakistan.
  31. Awan, M. H., Richardson, J., & Ahmed, S. (2022). Current status of research support services in university libraries of Pakistan. *Digital Library Perspectives*, 38(4), 412-428.
  32. Singh, A. (2022). Use of Statistical Analysis Supporting Tools in Libraries: an overview of statistical package for social science. *World Digital Libraries-An international journal*, 15(2), 91-104.
  33. Cambier, C., Galle, W., & De Temmerman, N. (2020). Research and development directions for design support tools for circular building. *Buildings*, 10(8), 142.
  34. Li, H., Yang, X., & Cai, X. (2022). Academic spin-off activities and research performance: The mediating role of research collaboration. *The Journal of Technology Transfer*, 47(4), 1037-1069.
  35. Piatnychuk, I., & Pyatnychuk, H. (2021). Modern information technologies and services in public institutions. *Journal of Vasyl Stefanyk Precarpathian National University*, 8(3), 43-51.
  36. Dagnino, F.-M., Dimitriadis, Y., Pozzi, F., & Rubia-Avi, B. (2020). The role of supporting technologies in a mixed methods research design. *Comunicar*, 28(65), 53-63.
  37. Rahman, M. H. A., Uddin, M. S., & Dey, A. (2021). Investigating the mediating role of online learning motivation in the COVID-19 pandemic situation in Bangladesh. *Journal of computer assisted learning*, 37(6), 1513-1527.
  38. Booker-Vaughns, J., Rosini, D., Batra, R., Chan, G. K., Dunn, P., Galvin, R., . . . Maguire, M. (2024). What's in This For You? What's in This For Me?: A Win-Win Perspective of Involving Study Advisory Committee Members in Palliative Care Research. *Journal of Patient Experience*, 11, 23743735231224562.
  39. Xuan, W. (2021). Implementation of a secure room booking system at the University of Manitoba Libraries. *International Journal of Librarianship*, 6(2), 63-72.
  40. Sanders Thompson, V. L., Ackermann, N., Bauer, K. L., Bowen, D. J., & Goodman, M. S. (2021). Strategies of community engagement in research: definitions and classifications. *Translational behavioral medicine*, 11(2), 441-451.
  41. Rizal, S., & Rodin, R. (2020). The Strengthening The Role and Function of Library in Supporting Scholarly Communication in The State Islamic Institute of Curup. *Indonesian Journal of Librarianship*, 118-136.