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## **“Drawing A Comparison of Research Facilities In Higher Education Institution of Quetta”**

**Abdul Qadoos;** *Ph.D. Research Scholar at Institute of Education & Research, Gomal University, D. I. Khan Khyber Pakhtunkhwa*

**Malik Amer Atta;** *Assistant Professor and Research Supervisor at Institute of Education & Research, Gomal University, D. I. Khan Khyber Pakhtunkhwa*

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**Received:** December 7, 2023

**Accepted:** December 14, 2023

**Published:** December 31, 2023

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### **KEY WORDS**

**Research Culture, Research Facilities, HEIs of Quetta, Research Resources**

### **ABSTRACT**

*The Higher Education Institutions (HEIs) in Pakistan have faced an immense financial crunch over the last few years, especially in the Province of Balochistan. The HEIs located in Quetta also face the same predicament in particular. This situation impacted the overall research culture of the HEIs. The objective of the current study is to explore the availability of research facilities in HEIs and draw a comparison regarding research facilities available in HEIs' of Quetta. The comparison is made based on available research-related resources for researchers in the Faculty of Science and Arts. The design of the current study was Descriptive research. The survey research method was adopted to compile the current study. A number of 533 researchers both research supervisors and research scholars were participants in the study. A multistage sampling technique was adopted to select the participants for the current study. A questionnaire was utilized to collect the responses of the respondents, having close-ended questions measured by using a 5-point Likert scale. The finding of the study reveals that the majority of the researchers are not satisfied with the available research resources in the survey HEIs. Although, the financial strains abstain.*

## **1.0 Introduction**

In the 21st century, especially in the scenario of Post-Pandemic COVID-19, Higher Education Institutions (HEIs), researchers, and the research community are also facing multiple challenges and adapting to these challenges while researching (Alblooshi et al., 2020). The landscape of HEIs is dynamic and it is affected by the advancement and needs of the society. In adjoining to this advancement and to keep pace with new standards of teaching, learning, and researching, the moods of research are also varied. Developing a supportive, positive, and productive research culture can be achieved through various factors and by equipping the research lab with the latest technology and trained staff. In the context of Pakistan, the HEIs, which are run by the Higher Education Commission of Pakistan (HEC), are the financing authority for both research and academia, besides managing the quality of teaching and learning. HEC provides opportunities to improve the quality and standards of research among university faculties. According to the HEC research policy, several billion are provided to strengthen varsity research activities (HEC-Annual Report, 2022).

Different kinds of programs or initiatives are taken to promote the research culture in Pakistan. Research studies suggest a strong positive relationship between HEIs' research and economic growth—more educational research, practices, and debate (Hammersley, 2002).

Educational research refers to the processes, products, and persons part of systematically developing knowledge of educational theories and laws. Moreover, it is a progressively important component for HEIs and academia.

Although HEC supports HEIs financially and provides resources including human resources there is a lack of scientific evidence about the impact of such support. In the current study, the researcher tried to highlight the availability of such resources in the HEIs. Developed countries invest much of their Gross Domestic Production (GDP) in Research and Development (R&D). According to Berliner (2002), research grants for educational innovations must be based on large-scale experiments, which only count for government subsidies (Hammersley, 2002). Compared to developed countries' investment in R&D, Pakistan invests a meager 0.3 % of its GDP on R&D (Naseem. et al. 2020), while Germany spends 2.5 %, Israel 3.9 %, and so on. In developed countries, the policies and practices are largely backed by R & Development (Maxwell, 2013; Maxwell, 2012).

Besides, good research cultures devise good results. Ball and Crawford suggest that happy researchers are also high-performing by creating conditions for their team: people-centeredness, kindness, focused research times, and adequate resourcing (McDonald, 2020). Considering the above arguments, it

reflects that any HEI that is financially sound and has a resource-rich research lab not only produces a bulk of research papers but also has an innovative and creative research culture that shapes the overall culture of HEIs.

Considering the mentioned arguments, it is evident that there is a lack of any scientific evidence that provides insight into the available resources for doing research in the HEIs of Quetta. So, in this study, the researcher tried to observe the opinion of the researchers regarding the availability of the resources related to research work. Moreover, how research scholars and research supervisors of the faculty of Sciences and Arts perceive these facilities.

### **1.1 Research Objective of the Study**

The current study encompasses the following research objectives.

1. To find out the research facilities available for researchers in the HEIs of Quetta.
2. To compare the opinion of the researchers of science and arts faculty regarding research facilities in HEIs of Quetta.

### **1.2 Research Question of the Study**

Following are the research questions of the current study.

1. What kind of research facilities are available for researchers in HEIs of Quetta?

2. To what extent do the opinions of the researchers of science faculty and art faculty differ regarding research facilities in HEIs of Quetta?

### **1.3 Significance of the Study**

This is the foremost study in the field of education research highlighting the available resources and facilities for doing research in the HEIs of Quetta. This study provided the primary data about the facilities available for doing research in the teaching faculties of Science and Arts. Not only this, but this finding of

### **1.4 Delimitations of the Study**

The current study is delimited to the

- i. Research scholars enrolled in HEIs either in MPhil. Program or PhD. program.
- ii. The research supervisors with Mphil. and PhD. Qualification.
- iii. Faculty of Science and Faculty of Art

### **2.0 Literature Review**

Facilities can significantly impact research culture by providing researchers with the necessary resources and infrastructure to conduct their research effectively. A positive research culture is characterized by an environment that supports and encourages innovation and collaboration, and facilities play an important role in fostering such an environment. The following studies provide evidence of facilities' impact on research culture.

Facilities are crucial in supporting research activities and can significantly impact research output in quantity, quality, and innovation. Adequate and well-equipped facilities provide researchers with the necessary resources and infrastructure to conduct experiments, analyze data, and collaborate effectively. Here are some ways facilities can impact research output and references to relevant sources.

Sandström, Hällsten, & Mould, (2016). In a study, "What determines the use of academic research in policy formation?" Explained that the availability of state-of-the-art equipment and resources enables researchers to conduct experiments and investigations that may not be feasible otherwise. Moreover, well-equipped facilities contribute to higher-quality research by providing researchers with the necessary tools to generate accurate and reliable data.

Dedicated spaces and infrastructure often facilitate collaborative research that encourages interaction and knowledge exchange among researchers. Facilities such as shared laboratories, meeting rooms, and collaborative workspaces promote interdisciplinary collaboration and foster innovative research, as stated by Cummings and Kiesler (2005). Access to high-performance computing facilities and data analysis tools can significantly enhance research productivity, particularly in data-intensive fields.

Advanced computational resources enable complex simulations, modeling, and data processing, leading to more sophisticated research outcomes (Gaffney & Dabkowski, 2017).

Similarly, well-established core facilities and research support services can provide specialized expertise, technical assistance, and access to specialized techniques. These facilities enable researchers to conduct advanced experiments, obtain high-quality results, and optimize research processes, as stated by Gurwitz & Milanese (2015) in a study titled "Highlighting the Impact of Infrastructure on Research: A Comparative Analysis of Biomedical Research Excellence in the European Union and selected former EU countries."

In a study by Lambert & Corbett (2018), "Collaboration and the Location of Innovative Activities in Canadian Manufacturing Industries," Research facilities attract talented scholars. World-class research facilities and infrastructure create an attractive research environment that attracts top talent, including researchers, faculty, and students. High-quality facilities signal a commitment to excellence, leading to increased research output and the ability to attract competitive research grants and collaborations.

In a study, Birnholtz et al. (2013) explained that access to high-quality facilities, such as laboratory equipment and technology, was positively associated with research productivity and collaboration

among researchers. Furthermore, the availability of research support services, such as data management and statistical analysis, is important in promoting a positive research culture of HEIs.

Harrison and Paul identify the relationship between facilities research innovation and research output. Facilities designed to promote collaboration and communication among researchers, such as open-concept workspaces and shared meeting spaces, were positively associated with innovation and research output, as revealed by Harrison and Paul (2016). A study by Liu and Wang (2018) found that the availability of funding for research facilities and equipment was positively associated with research productivity and the ability of researchers to attract and retain top talent. By providing researchers with access to high-quality facilities and support services, research institutions and organizations can help to create an environment that supports innovation, collaboration, and productivity.

### **3.0 Research Methodology**

The design of the current study was descriptive design and the survey research method was intended to collect the respondents' responses. The sample of the current study was those research scholars who are enrolled in MPhil. And Ph.D. program and research supervisors of the concerned HEIs. A multistage sampling technique was adopted to collect the responses of the respondents. The cluster sampling

technique was initially implied to distinguish the researcher into two clusters i.e. researchers from the Science faculty and Arts faculty respectively. In the second stage of the sampling technique, the convenience sampling technique was adopted to select the respondents for the concern study. The research questionnaire was developed with the help of related literature. The opinions of the respondents were measured on 5 5-point Likert Scale. The research questionnaire was distributed in two moods i.e. electronically and paper mood. A number of 650 respondents were contacted for data via email, web link, and personally for responses. Some 533 of the respondents responded.

### **4.0 Results and Discussion**

The following section deals with the major findings of the research study. Subsequently, the discussion and conclusion section followed the current study.

#### **Table no. 4.1 Frequency and Percentage of the Demographic Variables of the Study**

Variable	Frequency	Percentage	
Gender	Male	261	49.00
	Female	272	51.00
Parent University	UOB	258	48.40
	SBKWU	119	24.30
	BUY ITEMS	156	29.30
Qualification	Master	91	17.10
	MPhil.	335	62.90
	Ph.D.	97	18.20
	Post. Doc.	10	1.90
Faculty	Natural Sciences	91	17.10
	Social Sciences	335	62.90
	Other faculties	97	18.20
Researcher Status	Research Scholar	369	69.20
	Research Supervisor	164	30.80
Research Experience	No experience	99	18.10
	1 to 5 years	62	57.00
	6 to 10 years	79	14.60
	11 to 15 years	30	5.10
	More than 15 years	21	3.20
Job Designation	Lecturer	242	45.40
	Ass. Professor	56	10.50
	Associate Prof.	26	4.60
	Professor	7	1.30
	Other	202	40.00

Table No. 4.1 reflects the overall demographic variables of the respondents of the current study. A number of 49.00% of respondents in the study were male and 51.00 % were female. Considering the parent university, a number of 258 respondents were from the University of Balochistan (UOB), 119 were from SBKWU and a number of 156 respondents were from BUIITEMS. Moreover, the qualification of the respondents was Master (91), MPhil. (335), Ph.D. (97), and Post. Doc. (10). Considering the faculty of the respondents, the majority of the respondents (62%) were from the faculty of social sciences, while 17 % of respondents were from the faculty of natural sciences and 18 % of the respondents belonged to other faculties.

Considering the researcher status variable, a great number 369

of the respondents were research scholars while 130 (30%) of the respondents were research supervisors. Furthermore, the research experience variable reflects that a majority (57%) of the respondents have research experience of 1 to 5 years. And 18% of respondents do not have any research experience. The majority of the respondents of the current study were lecturers (45%), while 40 % of the respondents of the current study did not mention their jobs.

**Table no. 4.2 Means score and Standard Deviation against the questionnaire statements**

Serial No.	Statements	M	S.D.
1	Free access to research journals is available at the University	3.4	1.13
2	Technologically equipped science labs are available for research work	2.8	1.12
3	The latest research software/equipment available in the university	2.8	1.17
4	University management provides services for doing field research	2.9	1.21
5	An alternative source of energy is available during energy breakdown in the university	2.8	1.29
6	University management provides available data required for research.	3.07	1.08

Table no. 4.2 reflects the overall mean score and standard deviation against the mentioned statement. The results reveal that the majority of the respondents agree with the statement that free access to research journals is available in universities having a mean score of  $M= 3.4$  ( $SD=1.13$ ) but a great number of respondents do not agree having a mean score of  $M= 2.8$  ( $SD=1.12$ ) with the statement related to the availability of the technologically equipped science lab. Furthermore, in responding to the statement concerned with



the availability of the latest research software/equipment, the respondents did not agree with the statements having a mean score of  $M= 2.8$  ( $SD=1.17$ ). In responding to the statement about the services provided by university management to conduct field research, the majority of the respondents disagreed  $M= 2.8$  ( $SD=1.21$ ). assessing the alternative source of energy for doing research in the university, a great number of the respondents  $M= 2.8$  ( $SD=1.29$ ) did not agree with the statement. However, a great number of the respondents slightly agree  $M= 3.07$  ( $SD=1.08$ ) with the statement that university management provides available data required for their research work.

**Table no. 4.3 T-test for Comparison in Perspective of Research Facilities**

Stakeholder	Faculty	Gender	Research Facilities			Comparison								
			N	Mean	S.D	Gender			Faculty			Stakeholders		
						t-cal	t-ub	P-value	t-cal	t-ub	P-value	t-cal	t-ub	P-value
Research Supervisor	Social Science	F	28	3.16	0.57	0.8427	-1.3087	0.124	-1.9772	0.0015	3.2707	-1.9652	0.0001155	
		M	30	3.32	0.84									
		F	38	3.37	0.61									
	Social Sc	M	45	3.48	0.42									
		F	80	3.49	0.36									
		M	46	3.61	0.44									
Research Scholar	Social Science	F	105	3.45	0.47	0.0099	0.8721	-1.3087	-1.9672	0.1916	3.2707	-1.9652	0.0001155	
		M	102	3.44	0.42									
		F	105	3.45	0.47									
	Social Sc	M	102	3.44	0.42									
		F	105	3.45	0.47									
		M	102	3.44	0.42									

Keeping in view, table 4.3 reflects the differences among Research Supervisors (male and female) and Research Scholars (male and female) from the faculty of Science and Social science. From a gender perspective, the t-calculated values were 0.9685, 1.6589, 0.8427, and -0.1613 with p-values 0.0099, 0.8721. 0.403 and 0.3357 show no significant difference in their opinion regarding facilities.

From the faculty perspective, the t-calculated values were 0.124 and -1.3087 with p-values of 0.9015 & 0.1916, respectively, which shows a slight difference in their perception. The perception from stakeholders, including research scholars and research supervisors, the t-calculated was -64.50 with a p-value of 0.0001155, which shows no difference regarding the availability of the research facilities.

#### 4.4 Discussion and Conclusion

The finding of the current study reveals that the majority of the respondents from the surveyed HEIs in Quetta were of the view that there is a lack of research-related facilities in the universities. Moreover, they viewed that university management does not provide services for doing field research. Moreover, there is a lack of technologically equipped science labs, and have no latest software/ equipment required for their research. Comparing the views of the researchers from the Faculty of Science and Faculty of Arts, there exist slight differences regarding research facilities on the premises of surveyed universities. One plausible explanation of such a finding is that the nature of research equipment available for Social Sciences researchers differs from the lab requirements of the researchers of the Faculty of Sciences. The work of a social scientist is more related to human beings, while the researchers who work in Science labs are more concerned with machines or equipment. This is one of the reasons that draw opinion differences among

researchers of the Faculty of Social Sciences and Natural Sciences. Moreover, drawing a comparison among male and female researchers, there exists no difference of opinion related to the availability of research facilities in the HEIs of Quetta. Both male and female respondents were of the view that there is a lack of research facilities in the surveyed HEIs.

From the findings, it is concluded despite the lack of research facilities, the researchers of the surveyed HEIs are engaged in research work and it is high time for university management to not only provide technology-equipped research labs but also support researchers who are involved in doing field research. As it is well known that surveyed HEIs are currently facing a financial crunch, remaining in such a severe situation, future researchers are advised to conduct a research study that not only suggests the path way to uplift the current drastic situation of finance but also provides a plausible and scientific solution to the existing problem i.e. lack of research related resources.

## **5.0 References**

Alblooshi, M., Shams-Uz-zaman, M., Khoo, M. B. C., Rahim, A., & Haridy, S. (2020). Requirements, challenges, and impacts of Lean Six Sigma applications—a narrative synthesis of qualitative research. *International Journal of Lean Six Sigma*, 12(2), 318-367.

Berliner, D. C. (2002). Comment: Educational research: The hardest science of all. *Educational researcher*, 31(8), 18-20.

Birnholtz, J., Guha, S., Yuan, Y. C., Gay, G., & Heller, C. (2013). Cross-campus collaboration: A scientometric and network case study of publication activity across two campuses of a single institution. *Journal of the American Society for Information Science and Technology*, 64(1), 162-172.

Cummings, J. N., & Kiesler, S. (2005). Collaborative research across disciplinary and organizational boundaries. *Social Studies of Science*, 35(5), 703-722

Gaffney, J. D., & Dabkowski, M. (2017). High-performance computing for biomedical research: A review. *WIREs Computational Molecular Science*, 7(3), e1281.

Gurwitz, D., & Milanese, L. (2015). Highlighting the impact of infrastructure on research: A comparative analysis of biomedical research excellence in the European Union and selected former EU countries. *PLoS ONE*, 10(7), e0132586.

Hammersley, M. (2002). The relationship between qualitative and quantitative research: paradigm loyalty



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- versus methodological eclecticism.
- Harrison, C., Paul, S., & Burnard, K. (2016). Entrepreneurial leadership: A systematic literature review. *International Review of Entrepreneurship*, 14(2).
- Higher Education Commission Annual Report, 2020-21. Higher Education Commission, Pakistan, Retrieved from: E-Summary.cdr (hec.gov.pk)
- Lambert, R., & Corbett, J. (2018). Collaboration and the location of innovative activities in Canadian manufacturing industries. *Regional Studies*, 52(1), 58-69
- Liu, Weishu, Hu. Guangyuan, Li. Tang, and Yuandi Wang. (2015). China's global growth in social science research: Uncovering evidence from bibliometric analyses of SSCI publications (1978–2013). *Journal of Informatics* 9: 555–569.
- Maxwell T.W. & Smyth, R. (2013). Higher degree research supervision: from practice toward theory, *Higher Education Research & Development*, 30 (2), 219-231. DOI: 10.1080/07294360.2010.509762.
- Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. Sage publications.
- McDonald, A. R., Nash, J. A., Nerenberg, P. S., Ball, K. A., Sode, O., Foley IV, J. J., ... & Crawford, T. D. (2020). Building capacity for undergraduate education and training in computational molecular science: A collaboration between the MERCURY consortium and the Molecular Sciences Software Institute. *International Journal of Quantum Chemistry*, 120(20), e26359.
- Naseem, I., Imran, S., Tahir, M., & Saeed, B. B. (2020). A Descriptive Analysis of Research Culture in Pakistan with Contextual Reference to Management Sciences. *Journal of Applied Economics and Business Studies*, 4(2), 75-100.
- Sandström, U., Hällsten, M., & Mould, O. (2016). What determines the use of academic research in policy formation? A review of empirical research. *Research Policy*, 45(2),