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Jan, Saeed Ullah and Rehman, Adeel Ur, "USABILITY AND ACCESSIBILITY OF INTERNET BY THE UNIVERSITY STUDENTS OF PAKISTAN: A QUANTITATIVE STUDY OF KHUSHAL KHAN KHATTAK UNIVERSITY KARAK-PAKISTAN" (2020). *Library Philosophy and Practice (e-journal)*. 4029. <https://digitalcommons.unl.edu/libphilprac/4029>

**USABILITY AND ACCESSIBILITY OF INTERNET BY THE UNIVERSITY STUDENTS OF PAKISTAN: A
QUANTITATIVE STUDY OF KHUSHAL KHAN KHATTAK UNIVERSITY KARAK-PAKISTAN**

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ABSTRACT

This study was conducted to determine the approach of university's students towards internet use. This study was carried out at the Khushal Khan Khattak University Karak, Khyber Pakhtunkhwa, Pakistan. The main aim of the study was to know the internet use pattern of university students, Problems in the way of internet use and students satisfaction from University internet facility. The study was based on a quantitative research technique. Data was collected through questionnaires and Stratified Convenience Sampling technique was used for data collection. The findings of the study revealed that students mostly use the internet for academic purposes, social networking and other good purposes. The Internet has a good impact on the academic performance of the students.

Keywords: *Internet-Pakistan, University students-Pakistan, Social media-University students, Mobile Internet users- Students, World Wide Web-Khushal University.*

1- INTRODUCTION

Internet is a global "network of networks", it connects billions of computers worldwide together via wires, cables, wireless connections, and through other telecommunications channels. It is an accessible quality network of interlinked computer using a set of protocols and standards, the most common is TCP/IP. Internet or the World Wide Web (WWW) is available everywhere. It provides suitable and relevant results to search queries from human minds. It is a chief source of information and entertainment. Internet allows people of any category from all over the world to link with other live in any part of the world (khan, 2017). Internet is the result of interlinked Local Area Networks (LANs), which makes a large network usually called the Internet (Jan, 2015). The Internet has its root in the Advanced Research Project Agency Network (ARPANET) system of the Advanced Research Project Agency (ARPA) of United States Department of Defense, which linked collectively many computers to develop a communication network (Pastor-Satorras&Vespignani, 2007). In 1962, J.C.R Licklider a

scientist of Massachusetts Institute of Technology (MIT) was the first man who gave the concept of the Internet. At that time, Licklider was leading the first computer research project at the Defense Advanced Research Project Agency (DARPA). DARPA was then a unit of United States Department of Defense. Initially, ARPANET connected four computers located in California State and Utah serve online in September 1969. By 1981, ARPANET linked 213 computers and in 1987, this figure rose to 10,000. By 2011, the number of interlinked computers rose to 2095,006,005 (Jan, 2015). Today Internet has 4,312,982,270 users from all over the world with 55.6% penetration rate, while in Asia there are 2,160,607,318 internet users, which is 50.1% of the total users of the internet in the world.

In Pakistan, there are 44,608,065 internet users in 2017, which is 2.2 % of internet users in Asia. The penetration in Pakistan is 22.2% (Internet World Stats, 2019). Initially, in 1995, Digicom had begun internet facility in Karachi; it was the first internet service in the history of Pakistan. Just after one year in 1996, PakNet network, operated under the Pakistan Telecommunication Company Limited (PTCL) advanced in order to offer Internet service. The PakNet data network linked to the worldwide Internet by a total of 512 Kbps. In 1997, nine ISPs were serviceable, providing internet facilities in five cities to 25,000 subscribers. At that time, PTCL also provided Internet facility to approximately 8,500 subscribers. Various Internet facility providers appeared rapidly following the Initial service in Pakistan (Wolcott & Goodman, 2000).

In previous 18 years, the figure of internet users in Pakistan had improved tremendously, by 2000, the figure of internet user was 133,900 but after six years in 2006, this number rose to 12,000,000. By 2009, the number of users of the internet in Pakistan rose to 18,500,000 that increased to 34,342,400 in 2016. In the recent year 2018, there were 44,608,065 Internet users had reported (Internet World Stats, 2019). The reason behind the tremendous increase in the internet user in Pakistan is the emergence of mobile technology and social media; because according to report there are 44.61 million active internet users in Pakistan, in which 43.40 million are active mobile internet users. The report also shows that 37 million active social media users, in which 36 million are mobile social media users (We Are Social, 2019).

The Khushal Khan Khattak University Karak (KKKUK) is Public Sector University, established in October 2012 in the Sothern Region (Karak) of Khyber Pakhtunkhwa-Pakistan. The university's name is attributing to the legendary Pashtoon fighter, poet and leader of the Khattak tribe Khushal Khan Khattak. It comprises of one main campus, 13 Departments, and 11 affiliated colleges (www.kkkuk.edu.pk). The study will be advantageous for students as well as for the institution. The study could help the institution to know the approach of students

towards internet usage. The study will be helpful for curriculum developers, and policymakers to develop policies about the maximum utilization of internet technology for academic purposes. The finding of the study could help the institution to know about the major barriers to internet access facing by the students. The study could contribute to students self-assessment regarding internet use and can help them to plan their internet use for academic purposes.

2-PREVIOUS WORKS

Internet is a unique technology, which can be, utilize for learning at anytime and anywhere. It helps the students in expanding their academic experience, accessing to valuable information resources and interacts with personals in their same society (Adeyinka, 2007). Internet use has turn into one of the most important aspects of higher education student's life throughout the world. Many college students utilize internet service for communication with others and seeking information during studies. They utilize computers to complete their academic routine work such as assignments preparation, making study notes, multimedia for self-learning and in research projects (Bashir et al, 2016). As internet has vast academic applications and it can be, utilize for educational achievements. We should change our approach towards the use of internet and focus on opportunities that internet is providing for our academic success (Khan, 2017). The Internet helps students in critical thinking or writing. Furthermore, it can be used for information, house information; interacting with other, online lectures, exploring the world. Students could get an advantage from the internet and do more for their academic purpose, progress of their country and academic achievements (Muniandy, 2010). Internet use has a major impact on the educational results and social life of university level students. If internet used for study purposes, then it has a positive influence on the academic performance and if time consumed on the internet used for other purposes then it could be negative impacts on academic results of the students. Internet use also increases social activates of university students (Asdaque, Khan and Rizvi, 2010). Jan, Hussain, Ibrahim and Saeed (2018) investigated the internet use by the faculty members of Peshawar Medical College, Peshawar. The prime objective of study was to examine the approach of teaching faculty towards hard and soft form of learning resources accessible on the internet. The study also highlighted that internet speed, virus on systems and a lack of modern training were the major hurdles to the use of the internet. Ahmad and Rafiq (2016) explored the availability and usability of the internet by university students in Khyber Pakhtunkhwa. Results revealed that the majority of the students spend maximum time on the internet for entertainment purposes rather than educational purpose. The study exposed that negative approach of the society towards the internet usage, slow speed of internet, insufficient knowledge of online e-resources; immoral

materials, sites on the internet were the major barriers to the effective use of internet. Jan (2015) evaluated internet use by the teaching staff of Bacha Khan University Charsadda, Khyber Pakhtunkhwa Pakistan. The study suggested that proper motivation on the use of the internet, searching techniques, provision of uninterrupted power supply to the computer and utilization of the latest workstations are the need of the day. Manzoor (2014) analyzed the behavioral approach of Internet use by university students of Pakistan. Its results showed that maximum respondents used the Internet as a backing tool for educational and research requirements and furthermore study revealed that comfort of workload and saving of time was the key mentioned reasons for Internet access. Sheikh, Ismail, and Khan (2013) evaluated the online information use by students of the University of Peshawar. The study revealed that one of the major purposes of using the internet by students was to access information quickly. The study recommended orientation and training programs to improve user's internet proficiency and expertise.

Chhachhar, Khushk, Chachar and Qureshi (2013) investigated the university students and their internet use in Pakistan. The findings of the study suggested the awareness about the proper use of Internet. Naz, Malik, Zaman, Younis and Malik (2011) evaluated the usages of the Internet by medical students in their basic and clinical skills. The study concluded that undergraduate's medical students have access and awareness for Internet-based education and this should be included in the medical curriculum. Khan and Bhatti (2011) evaluated the internet use, and satisfaction among university students at University level. They found that the services delivered by the Pakistan Higher Education Commission (HEC) were not praise worthy. Asdaque, Khan and Rizvi (2010) studied the effect of the internet on the educational activities and social activities of university students in Pakistan. The study indicated that internet use for study had positive impacts on academic achievements and both directly proportioned to each other while internet had negative impacts on the social life of students so inversely related to the social life of students. Bashir, Mahmood and Shafique (2016) investigated internet use among undergraduate, graduate students and postgraduate scholars in the University of The Punjab. The results of the study demonstrate that majority of the students access internet for course reading and research.

Islam and Hossain (2016), Shukla and Shinde (2016), Siraj et al. (2015), Hinger and Hasan (2012), Terali and Tugun (2011), Fragkos, Frangos and Kiohos (2010), Al Saif (2009), Forston, Scotti, Chen, Malone and Den Ben (2007), Ucak (2007) and Adeyinka (2007) also conducted studies on various aspects of internet usage and accessibility.

From the review of the literature, it has concluded that no such type of study has conducted in Khushal Khan Khattak University Karak (KKKUK). This study of research will be helpful for faculty, students, librarians, curriculum developers, and policymakers to upgrade their policies regarding internet services and its utilization

3- OBJECTIVES OF THE STUDY

The key objectives of this study are following:

1. To know the purpose of internet use by University's students.
2. To know the impact of internet use on the academic performance of the students.
3. To know the Students' satisfaction level from University's Internet facility.
4. To pinpoint the major barriers in the way of internet usage.

4- RESEARCH METHODOLOGY

This study was conducted at the Khushal Khan Khattak University Karak. To achieve the objectives of the study, a survey research had planned as Jan, Hussain, Ibrahim and Saeed (2018), Bashir, Mahmood and Shafique (2016), Islam and Hossain (2016) and so many more studies had followed the same. The population for this examination was all the enrolled students of the Khushal Khan Khattak University Karak. A sample size of 297 was picked using Morgan and Krejcie (1971) Table for defining sample size from a certain population. For data collection, structured questionnaire was developed based on the review of the literature and checked by the two professionals. The questionnaire was modified according to the suggestions suggested by the experts. For the Purpose of the study, "Stratified Convenience Sampling", method was employed for distributing the questionnaire. Researcher personally visited each Department and distributed the questionnaires manually to gather the data from the students of each Department. Totally 297 questionnaires were distributed and 246 (83 percent) were collected back. Few of the questionnaires were returned at the spot while others were returned on the day decided by the students. The responses from the sample were evaluated quantitatively with the support of Statistical tools. For data evaluation and analysis sample frequency and percentage was used because it will clarify the phenomena under study. Tables and graphs were used for representing the analyzed data.

5- ANALYSIS OF DATA AND INTERPRETATION

The analysis of Table 1 shows that majority of the respondents (Eighty-Six Percent) were male students and remaining were female. The overall response rate was 83%, which was very good. The response rate of male students was 85 % while the response rate of female was 71%.

Table 1 also elucidates that Computer Science & Bioinformatics Departments of the Khushal Khan Khattak University Karak has more number of students followed by Department of Library & Information Science and Department of Management Science. The Department of Education & Research has the least number of students followed by the Department of Communication & Media Studies. The Department of Computer Science & Bioinformatics has more number of male students, while the Department of Library & Information Science has more number of female students than any other department. The female contribution from Geology Department was next to nil.

Table: 2 Program wise Information about respondents

Program	Respondents						
	Total		Gender				
Questionnaire Distributed	Frequency	R.R*	297	249	48		
Received			Frequency	R.R	Frequency	R.R	
BS	215	87 %	188	89 %	27	79 %	
Response Rate			83 %	85 %		71 %	
MA	17	7 %	13	6 %	4	50 %	
M.Phil/ MS Department	12	5 %	9	4 %	3	35 %	
PhD.	2	1 %	2	1 %	0	0 %	
Computer Science & Bioinformatics		47	19 %	44	21 %	3	9 %
Total	246		212		34		3 %
Geology		28	11 %	28	13 %	0	0 %
English		36	15 %	27	13 %	9	26 %
Communication & Media Studies		22	9 %	21	10 %	1	3 %
Management Sciences		38	15 %	36	17 %	2	6 %
Library & Information Sciences		44	18 %	30	14 %	14	41 %
Material Physics & Nanotechnology		27	11 %	23	11 %	4	12 %
Total		246		212		34	

R.R = Response Rate

Table 2 reveals that majority (Eighty-Seven percent) of the students at Khushal Khan Khattak University Karak were from BS program followed by the MA, M.Phil./MS and PhD. Programs. PhD program has the least number of students, only one percent of the students were enrolled in PhD Program followed by the M.Phil. / MS program.

5.1 Locations of Access to Internet, Access Method and Internet Use Learning Sources.

Students were asked to mark the place where they mostly access the Internet, how they access the Internet and how they learn to use the internet.

Table: 3 Distribution of location of access to Internet, access method and Internet use learning

Where do you use the Internet mostly?	Responses					
	Total		Gender			
	Frequency	%	Male	%	Female	%
University's Library	18	7 %	17	8 %	1	3 %
Home	189	77 %	158	75 %	31	91 %
Hostel	19	8 %	18	8 %	1	3 %
Classroom	4	2 %	4	2 %	0	0 %
Computer Lab	16	7 %	15	7 %	1	3 %
Total	246		212		34	
How you access the Internet?						
Personal Computer or Laptop	70	29 %	55	26 %	15	44 %
Computer of family member	4	2 %	3	1 %	1	3 %
Computer of Library	2	1 %	2	1 %	0	0 %
Mobile	157	64 %	139	66 %	18	53 %
Computer of IT Lab	13	5 %	13	6 %	0	0 %
Total	246		212		34	
How do you learn the use of Internet?						
self-taught	168	68 %	143	67 %	25	74 %
From teachers	48	20 %	42	20 %	6	18 %
From relatives	22	9 %	21	10 %	1	3 %
Through training	8	3 %	6	3 %	2	6 %
Total	246		212		34	

5.2- Location and Methods of Access to Internet

The analysis of Table 3 demonstrates that majority of the students of the Khushal Khan Khattak University Karak were accessing the Internet at their homes followed by hostels and University's Library. Interestingly, Two percent of the students mentioned that they were accessing the Internet at classrooms. Seven percent of the students were accessing the Internet at the University's Library and in the Computer Laboratory each. Table 3 also exhibits that Mobile Phone was one of the most used device by the students to access the internet followed by the Laptop. Majority (Sixty-Four Percent) of the students was accessing the Internet through their Mobile Phones. While twenty-nine percent students responded that, they used Personal

computer or Laptop to access the Internet. Few students declared that they accessed the Internet through the Computers of IT Laboratory. Computers of the Library were the least used by the students.

5.3 Sources and main purpose of internet use

The analysis of table 3 shows that about half of the students mentioned that learned the use of internet by themselves, while two-third of the students responded that they learned the use of internet from their teachers. Some students responded that they learned the use of internet from their relatives and few students learned through training. Internet is a dynamic tool used for multiple purposes. Students were inquired to mention their purpose of internet use.

Table: 4 Distribution of students' main purposes of internet use

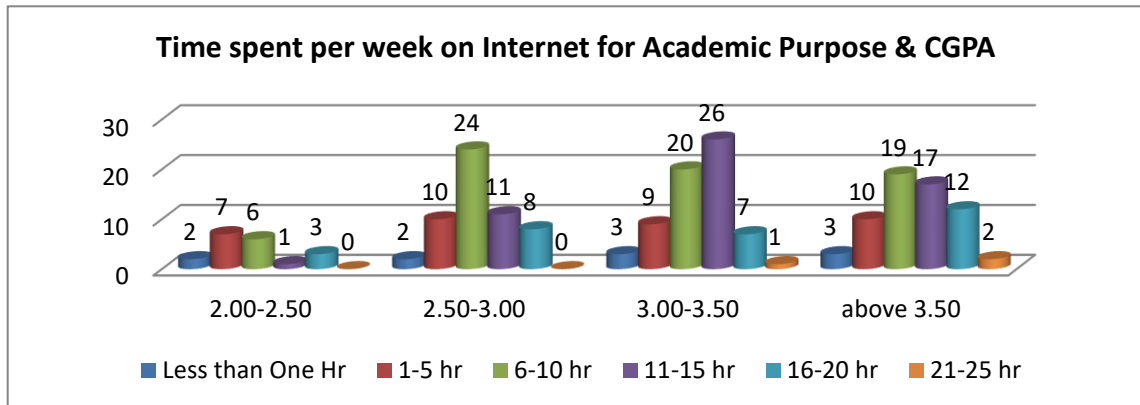
Purpose	Responses								
	Gender								
	Total			Male			Female		
	T.R	Yes		T.R	Yes		T.R	Yes	
f		%	F		%	f		%	
News	246	121	49 %	212	109	51 %	34	12	35 %
Social Networking	246	141	57 %	212	127	60 %	34	14	41 %
Playing games	246	42	17 %	212	41	19 %	34	1	3 %
Online Shopping	246	36	15 %	212	35	17 %	34	1	3 %
Academic Purpose	246	203	83 %	212	173	82 %	34	30	88 %
Note: T.R = Total Responses, f = frequency, % = Percentage							4	11	32 %
Downloading software	246	68	28 %	212	67	32 %	34	1	3 %
Searching for admissions, jobs, Scholarships etc.	246	74	30 %	212	71	33 %	34	3	9 %
watching sports	246	81	33 %	212	78	37 %	34	3	9 %

The analysis of Table 4 reflects that majority of the students at Khushal Khan Khattak University Karak used the internet for academic purposes. About half of the students used the internet for social networking followed by the news, entertainment and watching sports. Internet is least used for the online shopping followed by the playing games, downloading software and searching for admissions, jobs and scholarships. Majority of the female students use the internet for academic purposes followed by the Social networking and news. Few female used the internet for playing games, online shopping, watching sports and downloading software, while a notable figure of male access and use the internet for playing games, downloading software and watching sports.

5.4 Impact of Internet use on Academic Performance

This graph shows the impact of Internet use on academic performance of the students.

Graph 1: Time spent per week on Internet for Academic Purpose & CGPA



The above Graph 1 clearly indicates that the students at the Khushal Khan Khattak University Karak who spent more time on internet for academic purposes secured greater CGPA than those students who spent less time on internet for academic purposes.

5.5 Satisfaction level from the Internet facility provided by the University

The respondents were tested about their satisfaction level from the internet provided by the University. Table-5 elaborates the details about this phenomenon.

Table: 5 Satisfaction Level

Are you satisfied from the Internet facility provided by the University?		Yes		No	
		frequency	Percentage	frequency	Percentage
Total Responses	246	44	18 %	202	82 %
Male	212	37	17 %	175	83 %
Female	34	7	21 %	27	79 %

The analysis of Table 5 shows the alarming results that majority (Eighty-Two Percent) of the students are not satisfied for the internet facility provided by the Khushal Khan Khattak University Karak. Few students are satisfied from the internet facility of the University.

5.6 Problems to Internet Use.

The Students were asked to mention the problems they mostly faced in the way of internet use. The table 6 shows details about this phenomenon.

Table: 6 Distribution of problems faced by the respondents

Problems	Responses
	Gender

	Total			Male			Female		
	T.R	Yes		T.R	Yes		T.R	Yes	
		f	%		f	%		f	%
Slow speed of Internet	246	187	76 %	212	161	76 %	34	26	76 %
Lack of enough Computer terminals And access points	246	112	46 %	212	102	48 %	34	10	29 %
Lack of proper training	246	109	44 %	212	94	44 %	34	15	44 %
Irrelevant Information	246	51	21 %	212	43	20 %	34	8	24 %
Lack of searching Techniques	246	79	32 %	212	61	29 %	34	18	53 %
Information Over Load	246	59	24 %	212	53	25 %	34	6	18 %
Do not know about the databases related to my subjects	246	74	30 %	212	62	29 %	34	12	35 %
Finance	246	82	33 %	212	72	34 %	34	10	29 %
Social & Religious factors	246	45	18 %	212	37	17 %	34	8	24 %
Lack of support from IT staff	246	60	24 %	212	60	28 %	34	7	21 %
							34	9	26 %
Lack of uninterrupted power supply	246	57	23 %	212	52	25 %	34	5	15 %

The analysis of Table 6 exhibits that majority of the students at Khushal Khan Khattak University Karak faced the problem of slow speed of internet. About half of the students mentioned that lack of computer terminals and lack of proper training is the reasonable barrier to the use of internet. Apart from that slow speed of PC.s, lack of searching techniques, finance, ignorance about the subject related databases and lack of uninterrupted power supply are also reported as the problems in the way of effectively utilizing the internet. Very few students considered the Information over load, irrelevant information, social & religious factors as problems in the way of internet use.

6- FINDINGS, RECOMMENDATIONS AND CONCLUSION

The data collected were filtered, edited and analyzed. The following findings were extracted from the analysis of data.

6.1 Findings and recommendations of the study

The female contribution in this study was minimal. It was reported that the Department of Computer Science and Bioinformatics was the more populated as compared to other academic departments.

1. Reportedly, The Khushal Khan Khattak University Karak has more strength at undergraduate level. The enrollment at MPhil and PhD level is not satisfactory.

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2. It was found that students at the Khushal Khan Khattak University Karak do not utilize the University's library and computer laboratory to access the internet. Majority of the Students prefers to use internet in their homes.
 3. Students mostly use the mobile phones to access internet. The computers of library and Computer laboratory have not utilized for the accessing of internet by students.
 4. Study also found that students do not get any training of internet use. Mostly students learn the use of internet by themselves.
 5. The study found that majority of the students at The Khushal Khan Khattak University use the internet for good purposes like academic purposes, social networking and news. The study also found that the internet use has good impact on the academic performance of students.
 6. The study revealed that the students of The Khushal Khan Khattak University Karak are not satisfied from the internet facility provided by the University.

The study found that slow internet; lack of searching techniques and lack of proper training were the major barriers in the way of effective internet use. Reasonable numbers of students were also worried about the finance required for the internet packages.

6.2 Recommendations

1. There is a need to encourage the female to get higher education in the Khushal Khan Khattak University Karak. University management should initiate steps to motivate the female to get admissions especially in the fields of Geology, Computer Science and Management Sciences.
2. MPhil/MS and PhD programs in the Khushal Khan Khattak University need proper marketing to increase the enrolled students in the higher degree programs.
3. The University should maintain the attractive environment and provide effective facilities in the University's library and Computer Laboratory that attract the students to use the library and Computer laboratory resources.
4. The Government should provide laptops to the university students to encourage them to get new skills of the modern era.
5. For the proper and needy usage of internet, Smart university project of Higher Education Commission (HEC) should be implemented at Khushal Khan Khattak University Karak.
6. The University should organize and plan specialized training courses, workshops, conferences for the students about the internet use and related technologies.

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7. There is a need to provide sufficient fund to University's Library and Computer Laboratory to develop the internet facility and satisfy the internet need of the students at the Khushal Khan Khattak University Karak.
 8. As more students are, trusting on internet for their academic purposes so the University should solve the internet problem and provide high-speed internet, trainings on searching techniques, free internet facility to students in the University.
 9. It is recommended that future work should carry on monitoring students' usage and attitudes toward the Internet.

6.3 CONCLUSION

From the above discussion, it is clear that Internet has improved the way of education system, which is a vital mean of accessing and disseminating the information. Students, researchers and faculties utilize the internet service in multiple ways. Majority of the students utilize the internet for academic purposes, social networking and for other good purposes. Now Internet became one of the most important and first choice of students to fulfill their information needs. The Higher Education Commission (HEC) should make policy to provide the internet facility in universities, colleges, schools and other educational institutions of the country. The Pakistan Library Association (PLA) should make policies for libraries to ensure the availability of internet and related latest technologies for libraries. Institutions should provide the high-speed internet, quality Information Communication Technology infrastructure and free of cost service of internet to encourage students in order to utilize the internet for their academic purposes. HEC and PLA should plan and organize the conferences, workshops, seminars regarding the internet use. The academic institutions should solve all the problems and barriers to the utilization of internet to ensure the maximum utilization of internet for academic purposes.

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