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Usage of Subscribed & Open Access Information Resources by LIS Research Scholars

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Abstract:

Objectives of this study were to investigate the usage of subscribed and open access resources, preferences, level of awareness, reasons to utilize subscribed & open access information resources, and problems being faced while using the information resources by Library and Information Science (LIS) research scholars. Quantitative method followed by survey research design was used to conduct this study. Self-administered questionnaire validated by field experts was used to gather the data from the participants. The population of this study was postgraduate LIS research scholars from Punjab, who were enrolled in M. Phil. (2015-2017) and Ph. D. (2015-2018) programs. The survey was administrated personally. The data was gathered from 78 research scholars of Library and Information Science from the five LIS schools in Punjab. The data were analyzed through Statistical Package for Social Sciences (SPSS) Software. This study found that LIS participants preferred both resources like, subscribed and open access resources. The use of subscribed resources by Library and Information Science research scholars was preferred to open access resources for finding the articles and accessible anywhere of the world. There is a tendency among the researchers that due to lack of awareness, limited knowledge about existing research facilities, they do not fully utilize open access resources for their research and the database developed by the institution(s). A bunch of scholars does not aware of open access resources and due to this their utilization of this facility is quite low. Most of the libraries and the organization(s) do not have the facility and resources to have access to “subscribed electronic resources” due to heavy cost. Present study concludes that the LIS scholars prefer to use open access resources because of free availability on internet as compared to subscribed resources. Subscribed resources have a limited access only within the campus.

Key Words: Subscribed versus Open Access Journals, Usage of Paid and Free Journals by Research Scholars

Introduction and Background to the Study:

Usually, researchers use electronic journals from personal computers. They don't want to pay visits to libraries for exploring journals in print format. They want to do work innovatively. They want to follow new trends. Dillon and Hahn (2002) explored the use of print and electronic journals among faculty and students through a web-based survey in 2001 at the University of Maryland. They found that a significant number of faculty members used electronic version of printed journals at least once a month and the remaining 31% used printed journals from libraries. The reasons for preferring printed journals is that the users have personal subscription and also have no idea how to access them. The survey provides better understanding for collection development managers to convert subscribed journals from print to electronic.

With the passage of time, the usage of online journals is being increased. Users are becoming well versed in utilizing e-journals. They browse and search relevant journals in their area of knowledge. People who are skilled in IT show more willingness in using e-journals. Rogers (2001) performed a longitudinal study on the use of e-journals among faculty and students of Ohio State University during 1998-2000. During these two years, around 300 responses were received from each group. In 1998, only 200 journals were available in electronic shape while the number of e-journals enhanced to about 3300 in 2001. The findings revealed that the monthly usage of online journals enhanced from 36.2% in 1998 to 53.9% in 2000, while the printed journals decreased from 74.3% to 65.6% at the same time.

Some users prefer print journals because the subscription to print journals is easier. They get the personal subscription of the journals and keep receiving desired material at regular intervals. They need no IT skills to use print format journals. Dillon and Hahn (2002) explored the use of print and electronic journals among faculty and students through a web-based survey in 2001 at the University of Maryland. They found that a significant number of faculty members used an electronic version of printed journals at least once a month and the remaining 31% used printed journals from libraries. The reason for preferring printed journals is that the users have a personal subscription and also have no idea how to access them. Further, they were asked to indicate their

preferred format for the library subscription of core and non-core journals. Majority (70%) of faculty preferred core journals available in both electronic and print form while only a few respondents (20%) preferred electronic-only access and fewer (8%) preferred only print journals. The survey provides a better understanding of collection development managers to convert subscribed journals from print to electronic.

Lack of training in online searching techniques creates barriers for the users for locating relevant information. Users may not find desired information due to lack of familiarity with online databases. They face problems in accessing relevant online journals due to the unfamiliarity of IT. Nisha and Ali (2012) indicated that users are well aware of the availability of journals. They had knowledge about updates in their disciplines and located material for studies and doing research. The major barrier to finding relevant literature was lack of training sessions.

Open access resources are available free of cost on internet and subscribed resources are available with cost. Open access resources can be accessed without any restriction and subscribed resources can be used with VPN (Virtual Private Network) or IP (Internet Protocol) based with restricted access. So, most of researchers use open access databases and resources in their researches. Some of the peer reviewed journals are publishing their articles as open access resources. The internet or electronic production has introduced the open access resources for research scholars. The concept of open access was arrived from more than 20 years ago, when peer reviewed articles were published. At that time, most of researchers preferred using subscribed journals and articles due to authenticity. But most of the academic and organizations were not able to afford this cost. (Bjork, 2013)

The present study will be helpful regarding the utilization of subscribed and open access resources. The study will also be beneficial for the library professionals, researchers and administrator to formulate policies regarding purchase of electronic resources. The study has been limited to postgraduate M.Phil 2015-2017 and Ph.D. 2015-2018 sessions of Library and Information Science/ Information Management students of LIS schools in Punjab, Pakistan only. Following Library Schools were covered in the study:

- I. Department of Information Management, University of the Punjab, Lahore
- II. Department of Library and Information Science, Islamia University Bahawalpur, Bahawalpur

- III. Department of Library and Information Science, University of Sargodha, Sargodha
- IV. Department of Library and Information Management, Superior University, Lahore
- V. Department of Library and Information Science, Minhaj University, Lahore

Literature Review:

Print journals are easy to access. These can be easily utilized. Due to their lack of technical knowledge, many people feel uneasy while utilizing IT applications. They prefer manual work. They like to read print journals. They don't prefer online journals. They want to have convenience for themselves. As early as 1997, Curtis, Weller, and Hurd conducted a study related to information-seeking behavior of the faculty members of health sciences using emerging information technology. The study aimed to analyze the usage of e-journals by faculty members. The conclusions showed that the faculty members preferred to purchase printed journals. They did not make an excessive use of technology to locate required articles quickly.

Rusch-Feja and Siebeky (1999) conducted an online survey for the Max Planck Society (MPG) which is a leading society in research in Germany. They received 1042 responses. The study found out that computer literate people preferred e-journals rather than using print journals. They found comfort in using e-journals. Only a few respondents (14%) did not use e-journals due to the poor graphic quality and network dependency of e-journals. It shows that most respondents preferred electronic format. They wanted to bring completion of research-based works easily and quickly. They didn't want to depend upon printed journals.

Electronic journals are excessively utilized by the researchers. They depend upon online journals a lot. They use e-content to meet their research needs. Speier et al. (1999) explored the perception of researchers regarding online journals. They found that the young researchers were more interested in using the e-journals than the older faculty. Online journals were given importance and utilized efficiently. Researchers obtained multiple benefits by using electronic journals. They brought efficiency in their works. They did not wait for the arrival of print journals.

It is commonly observed that e-journals are preferred to meet information and research needs. E-journals are easy to access. There is no problem of exploring back issues of the journals in e-form. Morse and Clintworth (2000) compared the of usage of print and e-journals. The study aimed to find the preferred format of journals by the users. The findings revealed that users utilized

e-journals more than print journals. They completed their desired tasks quickly and efficiently. They faced no time limitation, space problem and finance issues to access their desired e-journals.

There is generally a rise towards electronic journals. There is a shift from print to e-resources. Therefore, faculty members of educational institutes are moving towards electronic resources. They are enhancing their IT skills. Tenopir, et al. (2003) conducted a comparative study on the utilization of journals by three different universities. The results showed that teachers were becoming habitual of using online journals. They were becoming IT literate. They were becoming innovative. The study also demonstrated that faculty was more interested in personal print subscription while they were infrequent users of electronic personal subscriptions. They used e-journals only when the option of print and e-journals was available. The science faculty is more interested in using the e-journals than the other faculty.

Journals are of great value for the research scholars due to multiple benefits. Kortelainen (2004) mentioned that users only liked to access relevant journals through online methods. They preferred open access journals. They wanted to have remote access of periodicals. They did not want to visit libraries physically for accessing relevant journals. Most of developing countries lack of essential infrastructure, economic support, human and academic resources to join the information age (Zwanikken, 2012). Some advanced institutions have adopted the latest technology and others are still providing the basic technological services in their institutions. Frass and Gardner (2013) stated authors' views of related issues and open access resources. The participants thought that OA journals offered faster publication (61 per cent) wider circulation (71 per cent), and higher visibility (55 per cent) subscription journals.

Latest empirical studies have also indication on the use of open access resources by faculty members of educational institutions (Gul et al., 2010; Dulle, 2010; van der Merwe, 2013; Lwoga, 2013). At the University of Kashmir, Gul et al. (2010) evaluated the perception of the faculty members towards open access resources. The use of open access resources online databases was determined which is available on the library web site. Results showed that 49 per cent of the member used subscribed databases and 42 per cent gave priority to open access resources. Most of the social sciences students (63 per cent) were found to be more dependent on open access resources than the science students (29 per cent). According to Van der Merwe (2013) it was revealed through two case studies conducted on Durban University of Technology that faculty used the open education resources for their research. In first study researcher found that the large

number of faculty members of Durban University of Technology used the open access resources to enhance the educational skills, preparing lectures, tasks, preparing notes, delivering assignments and free content on open access resources are more valuable than they have accessed.

Altbach and Rapple (2012) explored that the cost increasing of subscribed resources and journals very high. The libraries consumed more budgets on subscribed resources. The consumer index price of the resources was very high. The science and technology journals price ranged between \$ 20,000 to \$ 30,000 per journal in 2012. According to the researcher, the libraries required millions of dollars for science and technology titles as compared to the open access resources cost. The scholarly open access resources, databases, websites of libraries were richer as compared to subscribed resources. The librarians were more satisfied with online open access resources as compared to subscribed resources. Gruss (2012) discovered that the articles of open access resources were more retrievable, visible and accessible as compared to subscribed resources. Peer reviewed journals were not available in public libraries. According to Harle (2011) and Suber (2010), the final purpose of open access was to facilitate to the researchers and to access the best scholarly research work. Dulle (2010) conducted a study on faculty members of public universities in Tanzania and analyzed that 72% of faculty members were aware of open access resources. This study conducted that the general perception of faculty about open access resources were very positive and remarkable. Lwoga (2013) conducted a study on perception, attitude, awareness and use of open access resources at Tanzanian health sciences universities. The researcher found that the majority of faculty members were aware and well familiar about open access resources. The faculty members of this university had more technical skills, expert skills to access the open access resources.

Open access resources provide information to users globally however training is a must to properly utilize open access information resources. Most of the researchers don't have awareness about the use of open access resources. The major issue appeared during the research process like misconception about open access, lack of information technology application, lack of human resources with IT skills. (Ameen & Rafiq, 2009) Higher Education Commission centrally subscribed the databases through National Digital Library of Pakistan (NDLP) and provided access to universities. However, user training, and technical support were required to increase the use of digital library. (Midrarullah & Shafiullah, 2011)

Some researchers of the different institutes are not well versed in accessing online journals. They are not trained well in using IT tools. They are not provided training sessions of making an effective utilization of online journals. They remain traditional in their approach and don't bring innovation. They don't switch over to digital journals due to non-availability of proper training. Bernard (2015) stated that researchers used the e-journals for research and teaching purposes. However, there was a need for the library professionals to conduct Information Literacy sessions to make the researchers expert in searching online databases.

Research Questions:

1. What is awareness-level among LIS Researchers related to subscribed and open access information resources?
2. Which sources are more preferred by LIS Researchers?
3. What are reasons of using open access and subscribed information resources?
4. What are the problems faced by research scholars while using the subscribed and open access resources?

Research Design and Procedure

The study carried quantitative research method. Survey research design was used. This method was the most suitable, easy and comprehensive for this study. This method "involves obtaining information directly from the participants by posing questions. The populations of study were all postgraduates LIS students in LIS schools of Punjab, Pakistan. There were 98 students (M.Phil and PhD) who were enrolled in LIS schools in Punjab provincial. Census sampling technique was used in this study. "Censuses of population provide essential information on the structure of the population and, in particular, the characteristics of small areas and also covered the whole population" (Alasuutari, Bickman & Brannen, 2008). Instrument of questionnaire was developed. Researchers sent the questionnaire to 98 LIS research scholars and received the data from 78 research scholars. The collected data were analyzed using the Statistical Package for the Social Sciences Software.

Data Analysis and Interpretation

Demographic Information:

Table 1 shows demographic information about the participants. 58 (73.5%) male respondents and female respondents who participated in this study were 20 (26.5%). The qualification shows response rate of M.Phil were 66 (80.7%) and PhD were 12 (19.3).

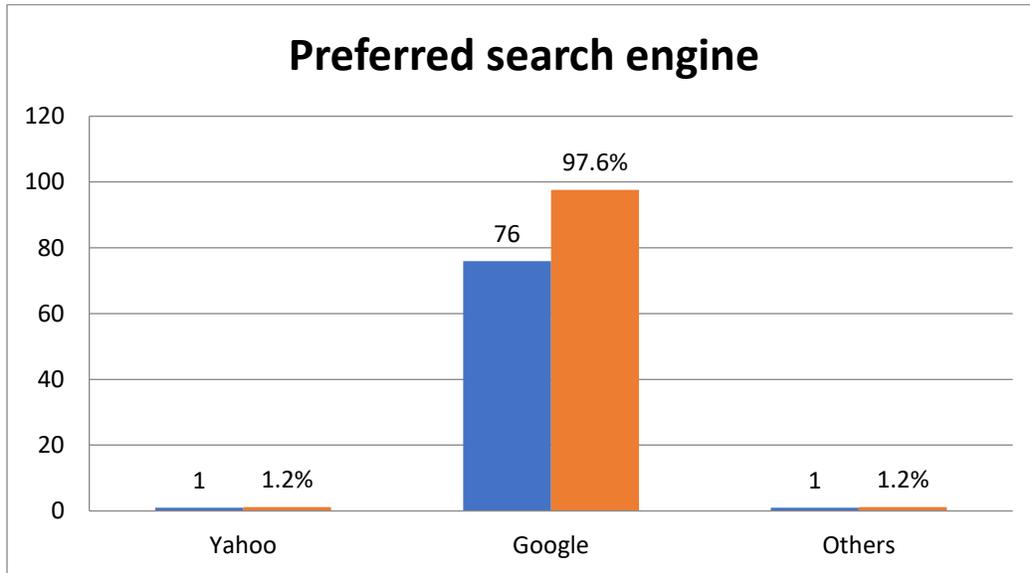
Table 1
Demographic Information

Variable	Levels	frequency	Percentage%
Gender	Male	58	73.5
	Female	20	26.5
Qualification	M.Phil	66	80.7
	PhD	12	19.3

Preferred Search Engine:

Figure 1 shows that preferred search engine was Google for finding the journals and articles 76 (97.6%), Yahoo and others were shown as 1(1.2%). The LIS research scholars preferred Google search engine.

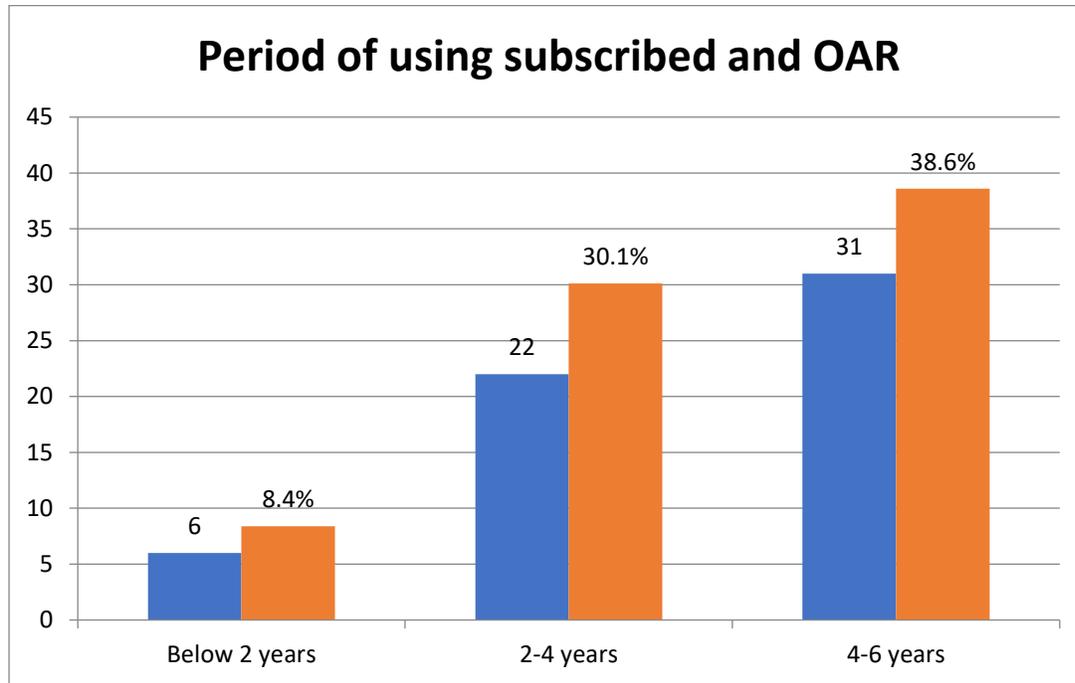
Figure 1
Preferred Search Engine



Period of Using Subscribed and Open Access Resources:

Figure 2 shows that period of using subscribed and open access resources postgraduate of LIS research scholars was the level of 4-6 years it was highest percentage of used 31 (38.6%) , 2-4 years and below 2 years showed lowest percentage for period of using subscribed and open access resources.

Figure 2
Period of Using Subscribed & OAR



Awareness about Subscribed & Open Access Resources:

Table 2 shows that Paired sample t-test was conducted to find significant difference between I heard it but I am not using subscribed resources using of subscribed and open access resources everywhere among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between using of subscribed and open access resources. There was a significant difference in the subscribed resources (Mean=1.69, SD=.465) and open access resources (Mean=1.79, SD=.406) the result is showing LIS research scholars says I am not using open access resources; $t(77) = -2.040$, $p = 0.045$.

Paired sample t-test was conducted to find significant difference between I am new to use subscribed resources among postgraduates LIS students. Test revealed that there was significant difference ($p < .05$) between of using of subscribed and open access resources I am new to use open access resources among postgraduates LIS students. There was a no significant difference in the subscribed resources (Mean=1.71, SD=.459) and open access resources (Mean=1.72, SD=.453) the result is showing in Mean difference the LIS research scholars says I am new to use open access resources; $t(77) = -.241$, $p = 0.810$.

Paired sample t-test was conducted to find significant difference between I am using subscribed resources since long among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between I am using subscribed resources since long among postgraduates LIS students. There was a significant difference in the subscribed resources (Mean=1.38, SD=.490) and open access resources (Mean=1.19, SD=.397) thus LIS research scholars says in I am using subscribed resources since long; $t(77) = 3.323$, $p = 0.001$.

Paired sample t-test was conducted to find significant difference between I am using subscribed resources rarely among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between I am using subscribed resources rarely among postgraduates LIS students. There was a no significant difference in the subscribed resources (Mean=1.54, SD=.502) and open access resources (Mean=1.54, SD=.502) the result is showing the use of I am using subscribed and open access resources rarely by LIS research scholars; $t(77) = .000$, $p = 1.000$.

Paired sample t-test was conducted to find significant difference between I am using subscribed resources most of the time among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between I am using subscribed resources most of time among postgraduates LIS students. There was a significant difference in the subscribed resources (Mean=1.37, SD=.486) and open access resources (Mean=1.24, SD=.432) the result is showing in Means of subscribed resources I am using subscribed resources most of time use by LIS research scholars; $t(77) = 1.10$, $p = 0.05$.

Table 2
Awareness about Subscribed & Open Access Resources:

		Mean	N	Std. Deviation	t-value (df = 77)	p-value ($\alpha = 0.05$)
Pair 1	7.1s I heard it but i am not using subscribed resources	1.69	78	.465	-2.040	0.045
	7.1o I heard it but i am not using open access resources	1.79	78	.406		
Pair 2	7.2s I am new to use subscribed resources	1.71	78	.459	-.241	0.810
	7.2o I am new to use open access resources	1.72	78	.453		

Pair 3	7.3s I am using subscribed resources since long	1.38	78	.490	3.323	0.001
	7.3o I am using open access resources since long	1.19	78	.397		
Pair 4	7.4s I am using subscribed resources rarely	1.54	78	.502	.000	1.000
	7.4o I am using open access resources rarely	1.54	78	.502		
Pair 5	7.5s I am using subscribed resources most of the time	1.37	78	.486	1.10	0.05
	7.5o I am using open access resources most of the time	1.24	78	.432		

Comparison between Use of Subscribed and Open Access Resources

Table 3 shows that paired sample t-test was conducted to find significant difference between use of subscribed and open access databases among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between use of subscribed and open access databases by LIS research scholars. There was a significant difference in the use of subscribed and open access databases (Mean=.2.84, SD=1.202) over all table shows significant different in subscribed resources the LIS research scholars are well using subscribed databases for their research work; $t(77) = -2.083$, $p = 0.041$.

Table 3
Comparison between Use of Subscribed and Open Access Resources

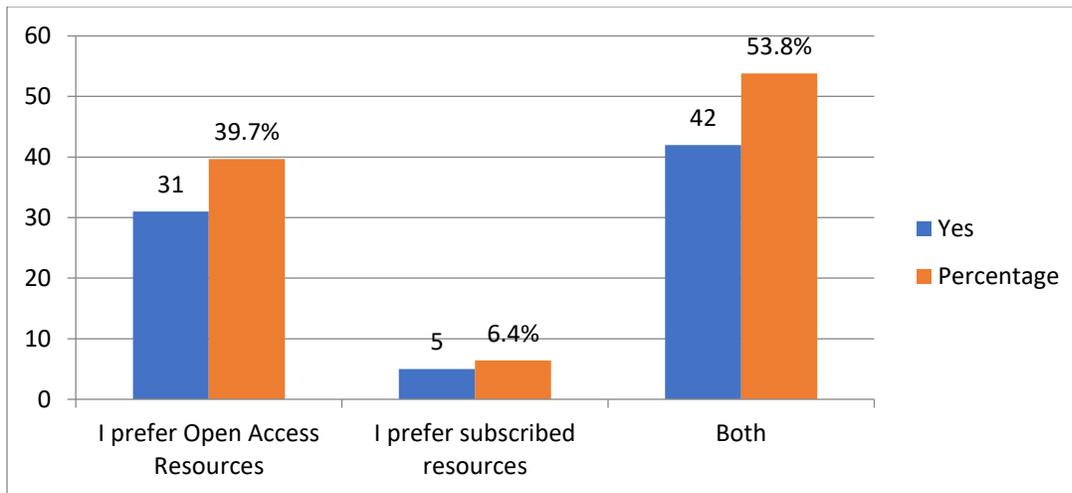
		Mean	N	Std. Deviation	t-value (df = 77)	p-value ($\alpha = 0.05$)
Pair 1	use of subscribed	3.7	78	1.22999	2.083	0.041
	use of OAR	3.42	78	1.15362		

Preference to Use OA or Subscribed Resources

Figure 3 shows the preference of postgraduates LIS research scholars related to OA and subscribed resources. 42 (53.8%) used both OA & subscribed resources. 31(39.7%) respondents preferred OA resources while 5(6.4%) respondents preferred subscribed resources.

Figure 3

Preference to Use OA or Subscribed Resources



Reasons for Using Subscribed and Open Access Resources

Table 4 is showing Paired sample t-test that was conducted to find significant difference between reason for using subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed peer reviewed articles and open access peer reviewed articles among postgraduates LIS students. There was a no significant difference in the reason for using subscribed peer reviewed articles (Mean=1.13, SD=.336) and reason for using open access peer reviewed articles (Mean=1.19, SD=.397) here is showing Mean difference very little for reason of using open access resources available peer reviewed articles for researchers; $t(77) = -1.520, p = 0.133$.

Paired sample t-test was conducted to find significant difference between reason for using subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed 24 hours accessibility and open access 24 hours accessibility among postgraduates LIS students. There was a significant difference in

the reason for using subscribed 24 hours accessibility (Mean=1.28, SD=.453) and reason for using open access 24 hours accessibility (Mean=1.10, SD=.305) result shows for LIS research scholars reason for using the subscribed resources 24 hours accessibility downloading and finding the materials from electronic resources ;t (77)= 3.151, p =0.002

Paired sample t-test was conducted to find significant difference between reason for using subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed your preferences are electronic and open access your preferences are electronic among postgraduates LIS students. There was a no significant difference in the reason for using subscribed your preferences are electronic (Mean=1.18, SD=.386) and reason for using open access your preferences are electronic (Mean=1.13, SD=.336) the mean shows little difference in subscribed and open access resources the LIS research scholars preferences are electronic ;t (77)= 1.070, p =0.288

Paired sample t-test was conducted to find significant difference between reason for using subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed too much information available and open access to much information available among postgraduates LIS students. There was a no significant difference in the reason for using subscribed too much information available (Mean=1.13, SD=.336) and reason for using open access too much information available (Mean=1.09, SD=.288) the mean shows little difference in subscribed resources the LIS research scholars mostly using the subscribed resource the reason for too much information published in their resources; t (77)= .773, p =0.442.

Paired sample t-test was conducted to find significant difference between reason for using subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed frequently publish information and open access frequently publish information among postgraduates LIS students. There was a significant difference in the reason for using subscribed frequently publish information (Mean=1.32, SD=.470) and reason for using open access frequently publish information (Mean=1.15, SD=.363) the result is showing reason for using subscribed resources for frequently publish information in their electronic journals ;t (77)= 2.830, p =0.006.

Table 4
Reasons for Using Subscribed and Open Access Resources

		Mean	N	Std. Deviation	t-value (df = 77)	p-value ($\alpha = 0.05$)
Pair 1	11.1s Peer Reviewed articles	1.13	78	.336	-1.520	0.133
	11.1o Peer Reviewed articles	1.19	78	.397		
Pair 2	11.2s 24 hours accessibility	1.28	78	.453	3.151	0.002
	11.2o 24 hours accessibility	1.10	78	.305		
Pair 3	11.3s Your preferences are electronic	1.18	78	.386	1.070	0.288
	11.3o Your preferences are electronic	1.13	78	.336		
Pair 4	11.4s To much information available	1.13	78	.336	.773	0.442
	11.4o To much information available	1.09	78	.288		
Pair 5	11.5s Frequently publish information	1.32	78	.470	2.830	0.006
	11.5o Frequently publish information	1.15	78	.363		

Comparison between Awareness of Subscribed and Open Access Resources

Table 5 is showing that Paired sample t-test was conducted to find significant difference between level of awareness about use of subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between awareness about electronic resources by LIS research scholars. There was a significant difference in the subscribed and open access resources (Mean=.158, SD=.682) LIS research scholars are well aware about subscribed resources for finding and downloading electronic journals articles; $t(77) = -2.033$, $p = 0.046$.

		Mean	N	Std. Deviation	t-value (df = 77)	p-value ($\alpha = 0.05$)
Pair 1	awareness of subscribed	2.3	78	.53487	2.033	0.046
	awareness of open Resources	1.9	78	.63345		

Level of awareness about subscribed / open access resources?

Table 6 is showing Paired sample t-test that was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between e-Journals

subscribed and e-journals in open access among postgraduates LIS students. There was a no significant difference between awareness of subscribed resources (Mean=2.68, SD=.747) and awareness of open access resources (Mean=2.73, SD=.767) result is showing the level of awareness about open access resources something better by LIS research scholars for finding and downloading electronic journals and articles for their research work ; $t(77) = -.684$, $p = 0.496$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed e-Books and open access e-Books about awareness among postgraduates LIS students. There was a no significant difference in the subscribed e-books awareness (Mean=2.56, SD=.731) and open access e-books awareness (Mean=2.69, SD=.795) the result shows very little difference between subscribed and open access resources the most of LIS research scholars are aware about open access resources for the findings and downloading the electronic books for their research work and study purpose ; $t(77) = -1.640$, $p = 0.105$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed e-Magazine and open access e-Magazine among postgraduates LIS students. There was a significant difference in the users awareness about subscribed resources (Mean=2.49, SD=.752) and awareness about open access resources (Mean=2.65, SD=.787) the result shows level of awareness about e-Magazine in open access resources respondent give the response LIS research scholars are use of electronic magazines for research work and study purpose ; $t(77) = -2.021$, $p = 0.047$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed e-Newspapers and open access e-Newspapers among postgraduates LIS students. There was a significant difference in the users awareness about subscribed e-Newspapers (Mean=2.50, SD=.769) and awareness about open access e-Newspapers (Mean=2.71, SD=.808) the result shows the level of awareness about e-Newspapers in open access is significant due to understanding level little better; $t(77) = -2.432$, $p = 0.017$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed e-Dissertation and open access e-Dissertation among postgraduates LIS students. There was a significant difference in the users awareness about subscribed e-Dissertation (Mean=2.49, SD=.802) and awareness about open access e-Dissertation (Mean=2.69, SD=.857) checking the users level of awareness about subscribed and open access resources shows in means and standard deviation difference the user level of awareness is good in open access resources as compare subscribed resources; $t(77) = -2.377, p = 0.020$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed e-Serials and open access e-Serials among postgraduates LIS students. There was a significant difference in the users awareness about subscribed e-Serials (Mean=2.29, SD=.758) and awareness about open access e-Serials (Mean=2.64, SD=.868) checking the users level of awareness about subscribed and open access resources shows in means and standard deviation difference the user level of awareness is good in open access resources as compare subscribed resources; $t(77) = -3.807, p = 0.000$

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed OPAC (online public access catalogue) and open access OPAC (online public access catalogue) among postgraduates LIS students. There was a no significant difference in the users awareness about subscribed OPAC (Mean=2.67, SD=.863) and awareness about open access OPAC (Mean=2.81, SD=.757) checking the users level of awareness about subscribed and open access resources shows in means and standard deviation difference the user level of awareness is good in open access resources as compare subscribed resources the respondents better search information from OPAC (online open access resources); $t(77) = -1.698, p = 0.094$.

Paired sample t-test was conducted to find significant difference between level of awareness about subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed Internet resources and open access Internet resources among postgraduates LIS students. There was a no significant

difference in the users awareness about subscribed Internet resources (Mean=2.67, SD=.832) and awareness about open access Internet resources (Mean=2.81, SD=.704) checking the users level of awareness about subscribed and open access resources shows in means and standard deviation difference the user level of awareness is good in open access resources as compare subscribed resources but the standard deviations difference shows the subscribed awareness in this table. So we says this is no significant in subscribed and open access resources; $t(77) = -1.621, p = 0.109$.

Table 6
Level of awareness about subscribed / open access resources?

		Mean	N	Std. Deviation	t-value (df = 77)	p-value ($\alpha = 0.05$)
Pair 1	E-Journals SUB	2.68	78	.747	-.684	0.496
	E-Journals OA	2.73	78	.767		
Pair 2	E-books SUB	2.56	78	.731	-1.640	0.105
	E-books OA	2.69	78	.795		
Pair 3	E-Magazines SUB	2.49	78	.752	-2.021	0.047
	E-Magazines OA	2.65	78	.787		
Pair 4	E-Newspapers SUB	2.50	78	.769	-2.432	0.017
	E-Newspapers OA	2.71	78	.808		
Pair 5	E-Dissertation SUB	2.49	78	.802	-2.377	0.020
	E-Dissertation OA	2.69	78	.857		
Pair 6	E-Serials SUB	2.29	78	.758	-3.807	0.000
	E-Serials OA	2.64	78	.868		
Pair 7	OPAC SUB	2.67	78	.863	-1.698	0.094
	OPAC OA	2.81	78	.757		
Pair 8	Internet Resources SUB	2.67	78	.832	-1.621	0.109
	Internet Resources OA	2.81	78	.704		

Problems while Using Subscribed / Open Access Resources

Table 7 is showing Paired sample t-test that was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed

problems difficult access to the necessary information and open access problems difficult access to the necessary information among postgraduates LIS students. There was a no significant difference when face problem while using the subscribed and open access resources subscribed problems difficult access to the necessary information (Mean=2.88, SD=1.02) and in open access problems difficult access to the necessary information (Mean=2.79, SD=1.06) so we checking the problems while using the subscribed and open access resources most of problems faced in subscribed resources when they used it; $t(77) = .624, p = 0.54$.

Paired sample t-test was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed the information is not updated and in open access the information is not updated among postgraduates LIS students. There was a no significant difference when face problem while using the subscribed and open access resources subscribed the information is not updated (Mean=2.64, SD=1.04) and open access the information is not updated (Mean=2.58, SD=1.04) the result shows in Mean of subscribed facing the problems during using the resources the users are saying the information is not updated in subscribed resources so we face the problems during finding the latest information on the internet and online databases; $t(77) = .500, p = 0.62$.

Paired sample t-test was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed and open access latest information are not available among postgraduates LIS students. There was a no significant difference when face problem while using the subscribed and open access resources subscribed latest information are not available (Mean=2.54, SD=1.09) and in open access latest information are not available (Mean=2.64, SD=1.07) the result shows in Mean of subscribed latest information are not available little difference between subscribed and open access resources. Thus the respondents are saying in open access resources the latest information is not available in online and databases resources; $t(77) = -.832, p = 0.41$.

Paired sample t-test was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed and open access Limited Access among postgraduates LIS students. There was a no significant difference when face

problem while using the subscribed and open access resources subscribed Limited Access (Mean=2.86, SD=1.11) and in open access Limited Access (Mean=2.77, SD=1.15) the result shows in Mean of subscribed shows the limited access for research scholars the most of online and database resources provide the limited access, like use the resources within the campus, VPN (virtual private network) and IP issues.; $t(77) = .542, p = 0.59$.

Paired sample t-test was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed and open access Lack of training among postgraduates LIS students. There was a no significant difference when face problem while using the subscribed and open access resources subscribed Lack of training (Mean=3.29, SD=1.19) and in open access Lack of training (Mean=3.40, SD=1.24) the result shows in Mean of subscribed facing the problems during using the resources the users are saying the lack of training in open access resources. Open access resources ask one time registration and then use easily and download the relevant material from open access. Thus the information provider, reference services provider and other librarian professionals arrange the training sessions for researcher than they will be able to use the open access resources; $t(77) = -1.033, p = 0.31$.

Paired sample t-test was conducted to find significant difference between face problem while using the subscribed and open access resources among postgraduates LIS students. Results revealed that there was significant difference ($p < .05$) between subscribed and open access Lack of awareness of e-resources among postgraduates LIS students. There was a significant difference when face problem while using the subscribed and open access resources subscribed Lack of awareness of e-resources (Mean=3.18, SD=1.20) and in open access Lack of awareness of e-resources (Mean=3.40, SD=1.24) the compare of Mean is showing the result in open access resources the publishers, authors and researchers don't have information about open access resources, if the information provider, librarians and other professionals they have knowledge about the use of open access resources. It should be provided the awareness to the user of the academic professionals and researchers than they will be used the open access resources; $t(77) = -2.406, p = 0.02$.

Table 7
Problems while Using Subscribed / Open Access Resources

		Mean	N	Std. Deviation	t-value (df = 77)	p-value (α = 0.05)
Pair 1	Is it Difficult access to the necessary information?	2.88	78	1.02	.624	0.54
	Difficult access to the necessary information	2.79	78	1.06		
Pair 2	The information is not updated	2.64	78	1.04	.500	0.62
	The information is not updated	2.58	78	1.04		
Pair 3	Latest information are not available	2.54	78	1.09	-.832	0.41
	Latest information are not available	2.64	78	1.07		
Pair 4	Limited Access	2.86	78	1.11	.542	0.59
	Limited Access	2.77	78	1.15		
Pair 5	Lack of training	3.29	78	1.19	-1.033	0.31
	Lack of training	3.40	78	1.24		
Pair 6	Lack of awareness of e-resources	3.18	78	1.20	-2.406	0.02
	Lack of awareness of e-resources	3.40	78	1.24		

Discussion and Conclusion

There is a tendency among the researchers that due to lack of awareness, limited knowledge about existing research facilities, they do not fully utilize open access resources for their research and the database developed by the institution(s). A bunch of scholars does not aware of open access resources and due to this their utilization of this facility is quite low. Most of the libraries and the organization(s) do not have the facility and resources to have access to “subscribed electronic resources” due to heavy cost.

The efforts, to provide, subscribed resources free of cost to the public universities by the Higher Education Commission (HEC) is highly commendable. The researchers of the public institutions are quite familiar about the usage of subscribed and other electronic resources available. Although, HEC does provide funds to the private institutions but due to lack of existing

facilities, lack of training and accessibility issues, the researchers do not get maximum benefit from these services.

A very meager budget is provided to private establishments and libraries in the segment of open access resources for the researchers. All efforts are made by these private establishments in organizing a database and open access resource for the scholars to continue their effort. LIS researchers have some respectable practice to get benefit from subscribed and open access resources. Studies reveal that open resources are appreciated and liked by the scholars as compare to subscribe resources. Therefore, present study has sufficient evidence about the utilization of open access resources.

It is a hard fact that lot of population is focusing towards research and the usage of gadgets like Tabs and smart phones has further motivated the users for the research. This new twist of technology has further facilitated the researchers to use these facilities at their door steps rather than visiting the libraries where the subscribed resources available. So due to these reasons the new scholars prefer to use open access resources for electronic learning rather than the subscribed one (Renear & Salo, 2003).

Studies conducted by the Rosso (2009), indicate that many resources are available to researchers for their studies in the shape of electronic books, newspapers etc. which have reduced the usage of writing material. Now researchers like to use computers or tabs or smart phones rather using ballpoint or pen. In order words, the writing material has been replaced by the usage of modern technology.

A large amount of research indicates that mostly LIS scholars inclined towards the open access resources as compare to subscribed access resources (Gonca et al., 2013; Nilgün, 2014). It is also noticed by the scholars that limited ratio of researchers still love to read from workbooks and manuals (Khalid, 2014). The studies indicate that LIS scholars voted for open access resources for the reason that it facilitates the large number of author(s) in their career development and in the provision of a plate form for their publications

One of the outcomes of the present study is that the library in-charge must have the information about the institutions that have open access resources.

Various studies conducted on the subject show that the researchers and institutions face some difficulty in obtaining, displaying the information on the open access resource from authors and publishers, respectively. Extra studies in other domains may reveal more interesting

information and highlight constraints faced by the researcher(s) in the usage of open access resources.

Present study concludes that the LIS scholars prefer to use open access resources because of free availability on internet as compared to subscribed resources. Subscribed resources have a limited access only within the campus.

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