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## Digitalization of Academic Libraries in Higher Education Institutions during COVID-19 Pandemic

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## **Digitalization of Academic Libraries in Higher Education Institutions during COVID-19 Pandemic**

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### **Abstract**

*This paper aimed to examine the digitalization of academic libraries in higher education institutions during the COVID-19 pandemic. As the current pandemic named the COVID-19 outbreak affected all the educational institutions in the global south and global north and Pakistan has no exemption. For this study, a quantitative stud design was opted to conduct an online survey from the library patrons. A sample of 1052 library users had been selected from public sector universities from Pakistan. It is pertinent to mention here that the google form was shared with 6852 library users through an email and WhatsApp numbers taken from universities concerned administration offices. Similarly, descriptive statistics, Pearson correlation, and multiple regression analysis had been employed to draw results and conclusions. The study findings revealed that there was a significant positive correlation between independent and dependent variables. Similarly, the COVID-19 infection, physical distancing, online periodical, online services,*

*and online audio/video material had favorable effects on the digitalization of library material.*

**Keywords:** COVID-19 Infection, Physical Distancing, Online Books, Online Periodical, Online Services, Online Audio/Visuals, Digitalization of Libraries

## **1.1 Introduction**

The current pandemic named the COVID-19 outbreak affected all the educational institutions in the global south and global north (Burki, 2020; De-Boer, 2021; Demuyakor, 2020; Shakespeare-Finch et al., 2020; Shoaib & Abdullah, 2020, 2021; R. Yang, 2020). It is pertinent to mention here that all the academic activities have been closed temporarily and shifted to an online mode later on (Adnan & Anwar, 2020; Akar, 2021; Park, Kim, & Kim, 2020). Physical presence and gathering were dangerous phenomena in this situation (Hoang, Huynh, Nguyen, Nguyen, & Le, 2021; Holt et al., 2020; Majumdar, Biswas, & Sahu, 2020). All the academic activities had been postponed temporarily and transformed to an online mode (Adnan & Anwar, 2020; Omar, Jusoh, & Kasuma, 2020; H. Yang, Bin, & He, 2020). Similarly, it was the need of the hour to shift the physical libraries to digital libraries to support online academic activities (Wang & Lund, 2020; Wijayasundara, 2021). Hence, the physical presence in classrooms and libraries was replaced by distance learning systems and digitalization of libraries to facilitate library patrons (Fraser-Arnott, 2020; Howes, Ferrell, Pettys, & Roloff, 2021; Ma, 2020; Toquero, 2020). It is pertinent to mention here that developing countries faced difficulties in terms of technology facilities, gadgets, and online network systems along with internet connectivity (Bao, 2020; Demuyakor, 2020; Jena, 2020; Toquero, 2020). These inadequacies initially highly disrupted library facilities at higher education institutions along with other social institutions (Condic, 2021; Decker, 2021; Fraser-Arnott, 2020; Ma, 2020). Later on, the libraries were transformed into an online mode to facilitate academic activities to students and teachers as well (Adams, 2020; Adedoyin &

Soykan, 2020; Habiba & Ahmed, 2020; Hoogland, 2021). Hence, this study aimed to evaluate the digitalization of academic libraries in higher education institutions during the COVID-19 pandemic.

### **1.1.1 The Study Context**

The current pandemic affected all educational institutions and academic libraries had been closed temporarily (Honey-Rosés et al., 2020; Mahmut, 2020; Smith, 2020). These activities had been shifted to an online mode and all the academic libraries also shifted their library material. The library patrons faced difficulty to manage academic activities (Ali & Gatiti, 2020; Crawford et al., 2020; Nawaz, Gomes, & Saldeen, 2020; Tamaro, 2020). At the same time, research scholars and students along with teachers were in acute difficulty in managing their study goals and completing their assignments (Mazure et al., 2021; Sangster, Stoner, & Flood, 2020; Smith, 2020). Hence, it was the need of the hour that digitalization of educational libraries of higher educational institutions should be done (Craft, 2021; Mahmut, 2020; Shahzad, Hassan, Aremu, Hussain, & Lodhi, 2020; Zawacki-Richter, 2020).

## **2. Review of Literature**

Several studies have been conducted to examine the effects of the current pandemic situation of COVID-19 on academic libraries all over the world (Bao, 2020; Butler-Henderson, Crawford, Rudolph, Lalani, & Sabu, 2020; Mahmut, 2020; Tamaro, 2020). It is evident that COVID-19 pandemic affected at large level to all the social institutions (Ahmad, Ahmad, Shoaib, & Shaukat, 2021; Ahmad, Shoaib, & Shaukat, 2021; Naseer, Shoaib, Ali, & Ahmad, 2021; Naseer, Shoaib, Ali, & Bilal, 2021; Shoaib, Ali, & Naseer, 2021). Similarly, as mentioned by König, Jäger-Biela, and Glutsch (2020) that online teaching and educational activities had been affected at a large level in Germany. In the same way, the study findings of Mahmut (2020) educational

activities had been affected at a large level in Turkey, and policy action had been made to manage the academic activities. The analysis of Rafiq, Batool, Ali, and Ullah (2021) reported that the COVID-19 pandemic affected the university libraries in developing and developed countries at a large level. However, the key finding of Murphy and Shelley (2020) had been reported on the affordability of text material to university students. Similarly, the analysis made by J. Garner et al. (2021) pointed out the academic and public libraries' response in terms of the Australian context. Likewise, the argument of Alajmi and Albudaiwi (2020) also mentioned the role of public libraries during the COVID-19 outbreak. It is pertinent to mention here that several studies had been conducted to highlight the issue of academic libraries towards the transformation of online material in developed and developing countries (Aduba & Mayowa-Adebara, 2021; Decker, 2021; Jung, Horta, & Postiglione, 2021; Koos, Scheinfeld, & Larson, 2021; Mishra, Gupta, & Shree, 2020; Sangster et al., 2020). The study findings of several studies pointed out that digitalization of academic libraries had been affected at a large level to the higher education institutions generally and academic libraries particularly (Murphy & Shelley, 2020; Rapanta, Botturi, Goodyear, Guàrdia, & Koole, 2020; Saran et al., 2020; Srivastava & Babel, 2021). It is pertinent to mention here that several studies had been conducted opting qualitative and quantitative methodology to draw results and conclusion (Shoaib, Abdullah, & Ali, 2020, 2021; Shoaib, Ahmad, Ali, & Abdullah, 2021; Shoaib, Latif, & Usmani, 2013; Shoaib & Ullah, 2019, 2021a, 2021b; Ullah & Shoaib, 2021). This study opted quantitative study design to examine the digitalization of academic libraries in Pakistan. Hence, this paper had been focused to examine the digitalization of academic libraries in higher education institutions during the COVID-19 pandemic.

### **3. The Data and Methods**

For this study, a quantitative study design was opted to conduct an online survey from the library patrons. A sample of 1052 library users had been selected from public sector universities from Pakistan. It is pertinent to mention here that the google form was shared with 6852 library users through an email and WhatsApp numbers taken from universities concerned administration offices. As the academic activities had been shifted to an online mode and WhatsApp was used as a source of communication. A well-structured questionnaire was administered and pretested from 30 randomly selected respondents. The value of reliability was ranging from 0.709 to 0.837. The data was coded and edited and computerized. Similarly, descriptive statistics, Pearson correlation, and multiple regression analysis had been employed to draw results and conclusions.

### **4. Results and Discussions**

This section provides the socio-demographic characteristics, descriptive statistics, Pearson correlation statistical test, and multiple regression analysis.

**4.1 Socio-demographic Characteristics:** The socio-demographic characteristics of the library patrons varied from individual to individual. It is pertinent to mention here that the age bracket of the library users were ranging from 21 to 32 years and enrolled in BS (4 years), MA/MS (2 years), M. Phil, and Ph.D. level of education. The family income of the library users was also ranging from 50000 to 150000 in Pakistani rupees. The parental main occupation was reported as farming, labor, government job, private job, trade, and self-business. It is pertinent to mention here that parents especially the father of the library users was abroad and sending remittance to the family rest behind. The family size of the library patrons was ranging from three to twelve family members residing in the nuclear, joint, and extended family system. The sample of library users was split over to rural-urban residential background and male-female gendered categories.

Table 1

*Descriptive Statistics (n=1052)*

Variable	Max.	Mean	Std. Dev.	Var.
COVID-19 Infection	20	17.64	2.300	5.292
Physical Distancing	24	20.85	3.127	9.780
Online Periodical	20	17.54	2.369	5.613
Online Services	20	17.94	2.297	5.278
Online Audio/Video Material	16	14.25	1.828	3.342
Digitalization of Library Material	20	17.76	2.243	5.031

**4.2 Descriptive Statistics:** Table 1 provided the descriptive statistics of the attitudinal variables.

It is worth mentioning to state here that the mean value of the COVID-19 infection variable was reported as 17.64 along with a 2.3 standard deviation and 5.292 variances. Similarly, the mean value of the physical distancing variable was reported as 20.85, 3.127 standard deviations, 9.780 variances. Further, the mean, maximum value, standard deviation, and variances of the variable including online periodical, online services, online audio/video material, and digitalization of library material had also been provided in table 1.

**4.3 Pearson Correlation:** The study findings showed that there had been a moderate correlation of physical distancing, online periodical, online services with COVID-19 infection. However, the analysis revealed that there had been a weak positive significant correlation between COVID-19 infection and online audio/video material. Further, digitalization of library material also had a moderate positive significant correlation with COVID-19 infection. In the same way, physical distancing had a moderate positive significant correlation with online periodicals and

digitalization of library material. It is pertinent to mention here that there had been a weak and moderate significant correlation between all variables mentioned in Table 2.

Table 2

*Pearson Correlation Statistical Test (1052)*

Variables	COIN	PHDI	ONPE	ONSE	OAVM	DILM
COIN	1	.594**	.562**	.306**	.244**	.447**
PHDI		1	.519**	.477**	.324**	.460**
ONPE			1	.450**	.225**	.464**
ONSE				1	.460**	.592**
OAVM					1	.433**
DILM						1

**4.4 Multiple Regression Analysis:** An OLS multiple regression analysis showed that the COVID-19 infection, physical distancing, online periodical, online services, and online audio/video material had favorable effects on the digitalization of library material. The study findings confirmed the hypothesis and predicted the digitalization of library material at academic libraries at the higher education institution level. The study findings had been similar to the study findings of several studies conducted in the field of library science, education, sociology of education, and many other linked disciplines (Alajmi & Albudaiwi, 2020; J. C. Garner & Logue, 2020; Lee & Springer, 2020; Naciri, Baba, Achbani, & Kharbach, 2020; Quattrone, Borghini, Emdin, & Nuti, 2020; Smith, 2020). It is pertinent to mention here that the study findings had differences with the stud findings of (Toquero, 2020), Nawaz et al. (2020), König et al. (2020), and Samaroudi, Echavarria, and Perry (2020). Similarly, the study findings had also shown that



academic libraries had been transformed to an online and digital material oriented in terms of digitalization at higher education institutions levels (Adedoyin & Soykan, 2020; Burki, 2020; Condic, 2021). The shifting of print material to an online database to support academic activities to an online mode during COVID-19 had been observed in developing and developed countries (Ahmad, Ahmad, et al., 2021; Ahmad, Shoaib, et al., 2021; Gonzalez et al., 2020; Jena, 2020; Marinoni, Van't Land, & Jensen, 2020; Sangster et al., 2020; Shoaib, Rasool, & Anwar, 2021).

Table 3

Multiple Regression Analysis Predicting Digitalization of Library Material (Parameter Estimates and Standard Errors)

Variables	Unstandardized Coefficients	Standardized		t	Sig.
		Coefficients			
		B	Std. Error		
COVID-19 Infection	.121	.032	.124	3.827	.000
Physical Distancing	.281	.027	.307	10.412	.000
Online Periodical	.031	.007	.158	4.413	.000
Online Services	.226	.030	.232	7.598	.000
Online Audio/Video Material	.128	.031	.104	4.122	.000
(Constant)	.522	.538		.970	.332

n=1052, R Square = .514, Adjusted R Square = .512, F = 221.134, Sig. = .000<sup>b</sup>

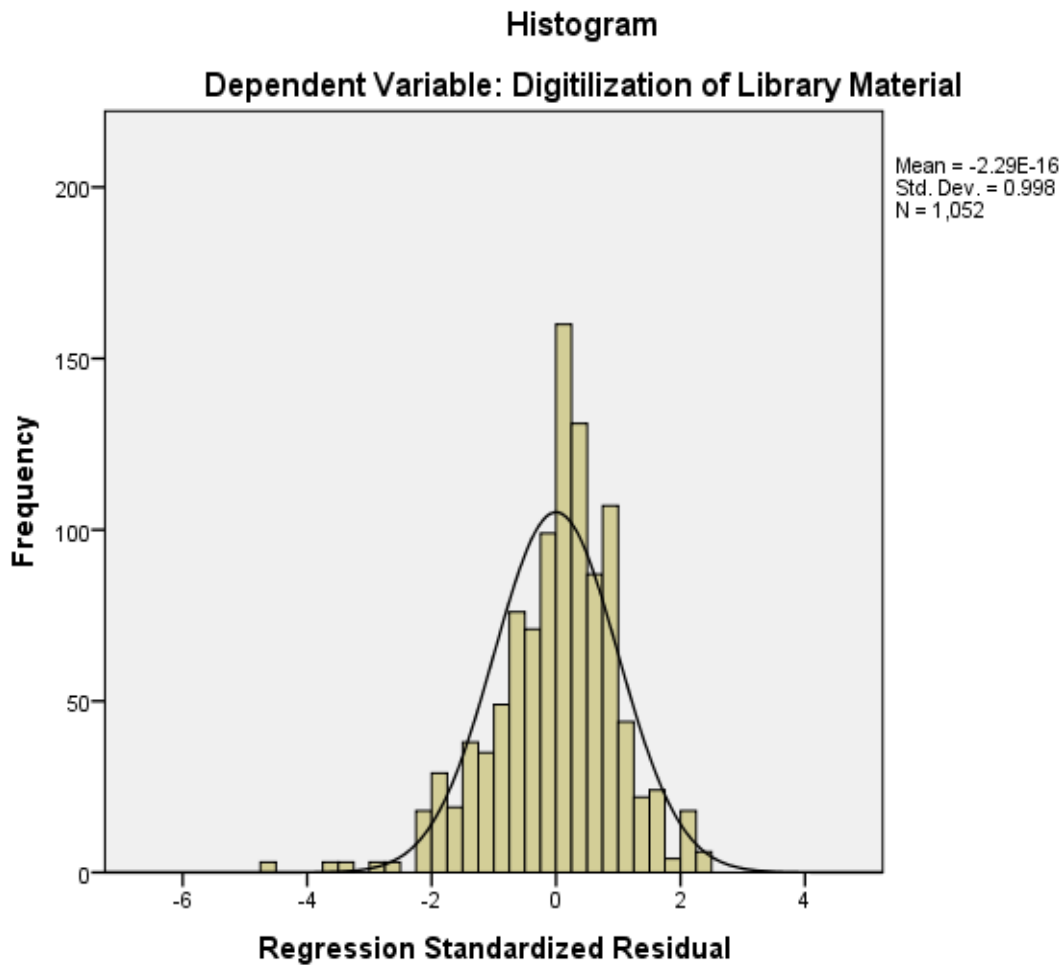


Figure 1: Histogram of the Data

## 5. Conclusion

The overall conclusion that we reached based on the study findings was that COVID-19 infection had affected all the educational institutions at a large level along with academic libraries. Further, academic libraries had been shifted to an online mode and proved academic material to the library patrons. The results supported that the COVID-19 infection, physical distancing, online periodical, online services, and online audio/video material had favorable effects on the digitalization of library material. Similarly, the analysis revealed that academic activities had

been shifted to an online mode during COVID-19 and all the library materials had also been digitalized to facilitate the library patrons. However, the internet connectivity along with other linked issues had been affected library patrons to use the library material in higher education institutions. At the same time, academic libraries tried their best to facilitate university students, teachers, and other linked staff.

## **6. Limitation of the Study**

The study is limited to a quantitative approach and cross-sectional survey. Further, it only focused to measure the response in terms of the academic library in higher education institutions.

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