



A Cross-Sectional Analysis of Digital Library Acceptance, & Dependency during Covid-19

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Received: 25 Feb. 2021, Revised 24 Apr. 2021, Accepted 8 July 2021, Published 28 Dec. 2021

Abstract: Despite the immense educational challenges during the Covid-19 outbreak, the role of ICT in education proved highly beneficial. The use of web-based Learning and Digital Library dependency remarkably increased, resulting in sustaining academic activities. The current research examined Digital Library usage and its impacts on students' educational activities and reading habits due to the recent healthcare crisis and closure of standard libraries in Pakistan. The researchers adopted a cross-sectional study design and distributed $n= 230$ closed-ended questionnaires among the public sector universities' students in the Twin Cities. The data is manipulated, coded, and analyzed through Structural Equation Modelling using IBM AMOS Version 23. Results revealed a robust and significant relationship between Digital Library Acceptance, Dependency, Sustaining Educational Activities, and Improved Reading Habits during the Covid-19 pandemic. However, the results explicitly rejected the intervening role of Prior Experience on Digital Library Dependency and Improved Reading Habits. Findings also highlighted the role of Digital Libraries as a fundamental part of the crisis management system. Thus, this investigation recommends more investigations to discuss the other positive aspects of Digital Libraries, especially during emergencies, to cope with the potential educational challenges and barriers.

Keywords: Digital Library; Covid-19; Education; Learning; Crisis Management; Structural Equation Modelling; Reading Habits

1. INTRODUCTION:

The outbreak of Covid-19 resulted in an immediate lockdown worldwide, hindering everyday life activities. Although lockdown adversely affected social life, it was an important step to curb the virus dissemination effectively (Nikdel Teymori & Fardin, 2020). As noted by (Conto et al., 2020), during March 2020, the increased cases of Covid-19 also resulted in curfew in more than 180 countries. Lawmaking bodies banned all social activities, including parks, offices, trading centers, markets, etc. Hence, the rapid spread of the Corona Virus resulted even in the closure of educational institutions worldwide. Students, instructors, administrators, and all other educational authorities are highly concerned about the ongoing challenges and struggling hard to mitigate the impacts of Covid-19. As a result, billions of students face learning difficulties as they are confined within their homes and struggling to cope with the current situation (Ali, 2020). Today, students who were resuming their education through the conventional learning system find it hard to pursue their academic activities. Although educational institutions are making much effort to cope with the challenges, they can still not resolve the ongoing uncertainties regarding learning through online platforms

(De Giusti, 2020). Although harnessing internet technology in education was the need of the day, ICT adoption, integration and, usage also became questionable for the students and parents. Students have learning disabilities and prior Dependency in the formal classroom and face-to-face learning environment (Habes et al., 2021). As (Arkorful & Abaidoo, 2015), lack of face-to-face interaction between students and teachers, and peers is one of the primary disadvantages of web-based Learning; students and instructors should have basic training the web-based learning management process to overcome this issue.

Moreover, parents' inability to motivate their children for web-based Learning also hindered student's eLearning acceptance and Dependency during the pandemic. More than 10% of parents reported that managing distance learning for their children is highly stressful, as they do not consider eLearning as competent as formal Learning. Similarly, adjusting to a new learning environment for the students also hampered the web-based learning process (Lee et al., 2020).

However, despite the ongoing challenges regarding web-based Learning, institutions are making much effort to sustain the educational activities in the best possible way. One of the common messages in the current pandemic is



that we need to show global solidarity and preparation for any potential emergency in the future (UNESCO, 2020). In this regard, web-based Learning is an effective technique to cope with educational challenges and an integral part of a crisis management system for future endeavors (WHO, 2020). Mostly, for a developing country like Pakistan, tackling the educational crisis was a significant challenge. However, today besides eLearning, access to additional books through social networking platforms and even Digital Libraries have overcome the vast academic challenges (Alhumaid et al., 2020; Ameen & Erdelez, 2011). The rise of Digital Libraries in Pakistan is due to a Higher Education Commission's shift from traditional nomenclature to the modern technology-based learning system. Availability of eBooks and even journals positively benefits the students and researchers in sustaining their educational needs both in the conventional and web-based learning environments. Today, Electronic Library by Higher Education Commission Pakistan has more than 80,000 books, which are accelerating the educational process, leading to more significant advantages for the students, instructors, and educational institutions all over the country (A. Khan & Ahmed, 2013). This Digital Library provides access to eBooks and eJournals, improves the ICT learning experiences, and keeps the students aware of current trends in educational arenas (Warraich & Tahira, 2009). In this context, we can consider Covid-19 as one of the stimulating agents of web-based Learning, Digital Library acceptance, and Dependency among the students (De Giusti, 2020). Due to web-based technology's superior capabilities, UNICEF, United Nations, and all the other organizations also emphasize web-based Learning as a fundamental part of the educational system during crises (World Bank, 2020). Likewise, to support the eLearning during Covid-19 (Alhumaid et al., 2020), Digital Libraries also provide substantial support to the students' learning process (Habes et al., 2020; Otubelu, 2011). It is also notable that; Digital Libraries are the same as Conventional Libraries. However, they are available through digital platforms that also facilitate saving the big data in a small space with ease of access, availability, and more excellent usability (Perdana, 2020). Therefore, by keeping in view the current educational challenges under consideration, this research examines the role of Digital Libraries acceptance and Dependency during the Covid-19 outbreak in Pakistan (Ali, 2018; A. Khan & Ahmed, 2013). For this purpose, the current investigation involves a conceptual framework supported by Media System Dependency Theory (MSDT) to bring clarity to the primary research hypotheses. In this regard, the research has addressed the following five research questions:

R1: Is there any relationship between digital library acceptance and resuming academic activities during covid-19?

R2: Is there any relationship between Digital Library Acceptance and Improved Reading Habits during Covid-19?

R3: Is there any relationship between Digital Library Dependency and Resuming Academic Activities during Covid-19?

R4: Is there any relationship between Digital Library Dependency and Improved Reading Habits during Covid-19?

R5: What is the role of prior experience regarding the relationship between Digital libraries and improved reading habits?

2.1: The Relationship between Digital Library Acceptance, Dependency, and Academic Activities:

Generally speaking, conventional and digital libraries serve three essential functions: (i) preserve the data, (ii) make the book and research journal readily available, and (iii) books are easily accessible and free of cost. However, Digital Libraries are comparatively more accessible, functional, and weigh no cost than the conventional ones. As a result, students and instructors both find Digital Libraries as a part of their educational journal, especially during web-based Learning. Students can typically not access the standard libraries due to specific reasons (accessibility, travel experiences, etc.) (Abbasi & Zardary, 2012). As eLearning internet is the only source of education, access to a standard library is challenging. To facilitate the students with books and journals and sustain their educational activities, we consider Digital Libraries a practical addition to the learning process. Today, the integration of Information Technology in education needs the day; Digital Libraries add more value to the new trends in the current educational environment (Sharifabadi, 2006). Here (Witten et al., 2006) attributed Digital Library to a significant and organized collection of eBooks and journals having attractive features for the readers. These libraries even offer access to non-specialist individuals to attain books they want to study for killing purposes. On the contrary, in educational arenas, Digital Library ensures the transformation of learning patterns due to the democratization of knowledge and information spreading. Earlier, the phrase "Learning and Digital Library" had separate components as education was mainly bound within formal learning institutions' four walls (Neuman, 1997). A cross-sectional survey conducted by (Kalinichenko et al., 2003) also revealed the positive aspects of Digital Libraries as sustaining educational activities with several relevant benefits. Such as cost-effectiveness and availability without any strict terms and conditions. Respondents also emphasized introducing Digital Learning as a formal learning system to facilitate more educational prospects. Likewise, As noted by (Ilahi et al., 2019), integrating ICT with education also increased the knowledge-gathering process's needs. Individuals who rely on eLearning can now access eBooks from online educational platforms as



the available content is more accurate, guaranteed, and efficient. As a result, today, higher educational institutions have also altered their existing learning system. In this regard, integrating Digital Libraries also became a fundamental component of particularly Learning Management System worldwide (Kováts, 2018). Another study to witness Digital Libraries' role in eLearning was conducted by (Chumbe et al., 2007). Findings gathered from reviewing the existing relevant literature provided substantial support to the current notions regarding the potential relationship between Digital Libraries and web-based Learning. As stated that, Digital Library provides reusable and re-accessible books and journals for Virtual Learners. These libraries are available as open-accessed and open-sourced repositories that also guarantee the students to access the same content repeatedly if needed.

(UNESCO, 2018) discussed one of the most prominent advantages of Digital Library in refugees' Learning as education. As argued that, in many European countries, when refugees immigrate, it is challenging to enroll their children in educational institutions instantly. To cope with these challenges, eLearning and online availability of books help them sustain their academic activities. Consequently, eLearning and Digital Libraries help overcome the difficulties raised by natural disasters, climate changes, migration, and healthcare crises. That is why the availability of eBooks and eJournals fosters a comprehensive, transformative, and quality education that largely influences academic performance (González-Zamar et al., 2020).

H1: There is a significant relationship between Digital Library Acceptance and Resuming Academic Activities during Covid-19

H3: There is a significant relationship between Digital Library Dependency and Resuming Academic Activities during Covid-19

2.2: *The Relationship between Digital Library Acceptancy, Dependency and Improved Reading Habits*

Several studies witnessed a robust and significant relationship between the library and improved reading habits among the students. We can attribute reading to fostering critical evaluation skills, increased knowledge, and reinforcing reflective behaviours. The development of reading habits is a social process as when an individual reads, he shares his experiences and indirectly motivates others to read (Gaona & González, 2010). The ability to read, learn and employ is a primary requirement behind personal fulfilment, social and economic development. A country directly relies upon educated individuals, especially those having free and sufficient access to educational resources. Today, UNESCO, UNICEF, and all other concerned bodies also emphasize the ease of access to the treasure of knowledge and education. In this regard, Digital Library's role cannot be denied (Bamberger, 1975; Perdana, 2020). Today, when people are more concerned about earning a livelihood, access to standard libraries for books and journals seems

complicated. Although readers are interested in reading new material, books' access and availability are challenging for them. To overcome this situation, Digital Libraries' rise is strongly associated with ease of access and ease of use through different devices such as mobile phones, tablets, laptops, and desktop computers (Tanjung et al., 2017). To further validate Digital Libraries' role in improving reading habits, (Thanuskodi, 2011) conducted a case study in Tamil Nadu, India. Data gathered from $n=3000$ university-level students indicated that university students are regular readers, visiting Digital Libraries daily. Respondents prefer these Electronic libraries to access extra study material. Also, they use Digital Libraries to gather their favourite books in general.

As a result, the growing amount of time spent on reading eBooks is creating specific positive outcomes. Significantly, young people are mainly changing their attitudes towards reading and learning. Likewise, they also share the knowledge with a broader audience to raise and availability of several social media platforms. An increased number of readers have shifted from paper books to online books, which is also a positive consequence of Digital Libraries regarding resource preservation (Qutab et al., 2017). In this regard, (Shimray et al., 2015) consider Digital Libraries' availability even on mobile phones as one of the most significant ICT contributions in education. As noted, traditional books are replaced with eBooks due to more excellent usability for the potential readers. By usability, we mean the unique characteristics of eBooks, which increase the availability and entice the readers to stay connected and read more reading content.

A survey also authenticated the impacts of Digital Library on the reading habits in Nigeria. As the data gathered from Higher Educational Institutions also indicated that Digital Libraries' Dependency and usage highly motivated them to explore more books concerning their coursework and general interest. Consequently, they improve their reading habits and improve their academic grades (Akpokodje & Ukwuoma, 2016). As gathering information from online resources is the need of the day, it has also transformed reading skills in general. As book reading is a multidimensional process, Digital Libraries serve functions to sustain this procedure, i.e., writing, space, /medium, touch, movement, visual, etc. Computer-aided reading offers access to a treasure of books and improves reading habits and knowledge among the readers (Maden, 2018).

Today, with the availability of electronic books, students are reading from the screens. Academic documents are long, hard to manage, and sometimes challenging to obtain. People, especially the young generation, are comparatively more reliant upon electronically available books and library resources. Digital Libraries contain eBooks and journals with optimized multimedia and hypertext, which also improved the students' Learning and academic outcomes (Walsh, 2016). Today, when online technology is a fundamental component of our everyday life, it has also integrated into students' learning management process.

These electronic resources are faster than the traditional ones, more appealing for the readers, and contain a treasure of knowledge in every word and phrase. Digital Libraries do not limit expertise and information in a single book. Instead, every book and journal provides a gateway to more information and fruitful outcomes (Shrestha, 2008).

H2: There is a significant relationship between Digital Library Acceptance and Improved Reading Habits during Covid-19

H4: There is a significant relationship between Digital Library Dependency and Improved Reading Habits during Covid-19

2.3: The Mediating Role of Prior experience on Digital Library Dependency and Improved Reading Habits:

Today educational institutions are confronting several drastic changes due to social, economic, and technological advancements. Integrating internet technology with education is an interconnected environment that enables students to improve their learning experiences. Adopting ICT in education also allows the students to make informed decisions and adopted suitable measures for the socio-economic environment's integrity (González-Zamar et al., 2020). However, ICT adoption, more specifically Digital Library adoption, is not a new phenomenon as Digital Libraries have always contributed to facilitating both teaching and learning processes (Marchionini & Maurer, 1995).

According to (Shem, 2015), Digital Libraries are a significant addition in those institutions where cost-effectiveness and distance learning are the two primary considerations. Digital Libraries have gained much attention since the 1990s. Today Digital Libraries are an essential component of learning systems in different countries, including India, Malaysia, the United States, Thailand, South Korea, and others. Now that educational institutions are closed, and access to standard libraries is difficult (Alhumaid et al., 2020), those having some experience with Digital Libraries are sustaining education by using these all online resources (Audunson & Shuva, 2016). To improve the learning and reading experiences during the Covid-19, Digital Libraries stakeholders also brainstormed to modify the students' online library usage further. Here, prior experience again intervened the relationship between Digital Libraries and reading habits, as students perceived Digital Library as a valuable source to attain books and continue reading and learning despite the lockdown and closure of educational institutions (Mehta & Wang, 2020). Especially in Pakistan, local universities upgraded the learning systems and modified access to Digital Libraries to access the Library resources from their offices and homes. During the lockdown, Digital Libraries help Pakistani students concerning educational correspondence, transformative Learning, inquiry-based Learning, and face-to-face communication with peers and class instructors. As a result, the students

of distance learning education and the individuals resorting to eLearning also improve their educational performance and reading habits in general (Sadia et al., 2020).

H5: Prior experience with Digital Library dependency have mediating impact on improved reading habits

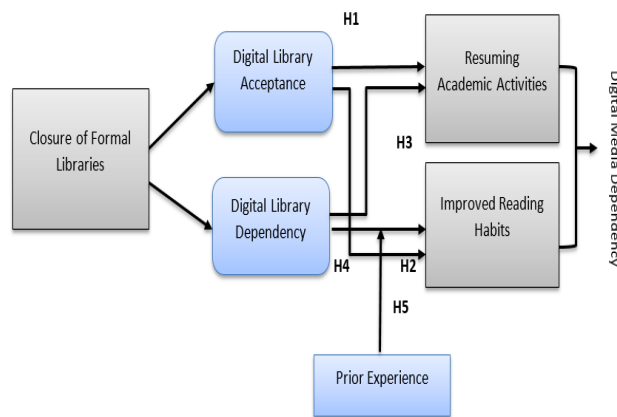


Figure 1. Conceptual Model

3. THEORETICAL FRAMEWORK:

As mentioned earlier, educational institutions' closure challenged formal education, leading students to resort to web-based Learning and teaching during Covid-19 (Mehta & Wang, 2020). In this context, Media System Dependency Theory (MSDT) or widely known as Media Dependency Theory, provides necessary theoretical support to the current research, which was proposed initially by Sandra Ball Rokeach and Melvin DeFluer in 1976. According to (Brough & Li, 2013), Media System Dependency Theory (MSDT) attributed media dependency to a stronger correlation between the users and the media platforms. Several cultural, personal, and symbolic factors bridge the relationship between media and users to strengthen this correlation. Similarly, during the current healthcare crisis, when a virus outbreak exacerbates the formal educational system, dependence on the internet is an inevitable phenomenon. However, stimulating digital technology adoption is a positive aspect of the current pandemic as we are experiencing innovative strategies to support education (De Giusti, 2020). Although Libraries' digitalization has confronted several social, cultural, and economic barriers, acquiring a Digital Library initiative license proved fruitful to mitigate the increased challenges raised by Covid-19 (Tammara, 2020). Thus, even after the pandemic, educational institutions will prefer to rely on their web-based system for the libraries. These Digital Libraries will not only facilitate the electronic learning system; also, they will improve the post-Covid-19 formal learning environment (Obeidat, 2020).



4. RESEARCH METHODS:

According to (Levin, 2006), cross-sectional studies facilitate an investigation conducted for a short period, offering strongly generalizable results. Whether the sample size is small or large, cross-sectional studies are mainly preferred by researchers worldwide (Levin, 2006). By keeping in view the importance of cross-sectional studies, the current investigation also involves the relevant study design. As this research involves a directional relationship between proposed variables, the researchers conducted Structural Equation Modelling using AMOS Version 23 to validate the conceptual model (Moutinho & Huarng, 2012).

Furthermore, the researchers used closed-ended questionnaires based on a five-point Likert scale. However, the scales are selected from previously conducted studies. Here the scale regarding Digital Library Acceptance and Dependency to resume eLearning is adopted from the study (Makori & Osebe Mauti, 2016). The scale for measuring Digital Library acceptance and Dependency for improved reading habits is taken from the research conducted by Digital Library Acceptance. Scale for measuring the intervening role of prior experience is adapted (Doris et al., 2013). **Table 1** below summarizes the sources and number of scales adapted from each selected study:

Table 1. Sources of Measurement Scales

Scales	Sources	Number of Items
DL	(Makori & Osebe Mauti, 2016)	08
DLD	(Alhumaid et al., 2020)	08
PE	(Doris et al., 2013)	08

Thus, the data gathering tool contained $n= 29$ questions, out of which $n= 4$ questions were aimed at gathering the participants' demographical data. For data gathering purposes, the researchers used online surveys after affirming that the students greatly fulfil the inclusion criteria. The researchers also ensured informed consent and declaration regarding respondents' autonomy to withdraw from filling out the questionnaires whenever they want. All the collected data were anonymous and validated by the Allama Iqbal Open University's Research Review Board. Researchers also determined the particular number of surveys, so when the required number of responses were gathered, researchers turned off the response acceptance process. Nevertheless, the response rate was 100%, as all the respondents appropriately filled the questionnaires and no one withdrew from the process.

4.1 Convergent Validity Analysis:

The researcher assessed the research model by using the construct validity analysis. Including Factor Loading, Cronbach Alpha, Composite Reliability, and Average Value Extracted, suggested by (Carlson & Herdman,

2012). Convergent validity analysis revealed that the Cronbach Alpha Values are raging between .799-.871, indicating that the research instrument is intensely reliable. Moreover, the Composite Reliability is also established as the values are ranging between .793 to 1.606. Likewise, the values in Factor Loading surpass the threshold value of .5, and the value of Average Variance Extracted (AVE) is also above .7, so we can affirm the convergent validity. Table 2 summarizes the outcomes of convergent validity analysis:

Table 2. Convergent Validity Analysis (Factor Loading, Cronbach Alpha, Composite Reliability & AVE)

Variables	Items	Factor Loading	Cronbach Alpha Value	AVE	CR
Digital Library	DL1	.933	.801	.849	1.606
	DL2	.934			
	DL3	.848			
	DL4	.968			
Acceptance	AC1	.973	.800	.853	.793
	AC2	.740			
	AC3	.982			
	AC4	.979			
Dependency	DP1	.935	.807	.856	.959
	DP2	.944			
	DP3	.969			
	DP4	.853			
Improved Reading Habits	IRH1	.927	.779	.874	.970
	IRH2	.954			
	IRH3	.950			
	IRH4	.909			
Prior Experience	PE1	.695	.871	.875	.827
	PE2	.648			
	PE3	.880			
	PE4	.948			

4.2 Discriminant Validity Analysis:

In order to establish the discriminant validity, we executed both Fornell-Larcker and Heterotrait-Monotrait Ratio criterion (Ab Hamid et al., 2017). As we can observe in Table 3, the Square Root of all the Average Variance Extracted (AVE) is higher than the correlation values; discriminant validity is partially established.



Table 3. Fornell-Larcker Scale

	DL	DLA	DLD	IRH	PE
DL	.720				
DLA	.657	.727			
DLD	.637	.714	.732		
IRH	.594	.713	.639	.763	
PE	.078	.124	.099	.092	.765

Note: DL: Digital Libraries, RAA: Resuming Academic Activities, DLA: Digital Library Acceptance, DLD: Digital Library Dependency, IRH: Improved Reading Habits, PE: Prior Experience

In order to ultimately establish the discriminant validity, we further examined the Heterotrait-Monotrait Ratio (HTMT) value by using the designated formula: $(=AVED (M80:N82/ (H53:P57* H58:U62* H63:Z67) ^{.05}$. After calculating the Heterotrait-Monotrait Ratio $(=.0814/ (.845*.844*.097) ^{.05}= 0.7415)$, we, therefore, found that the HTMT value is lower than the threshold value of 0.9 (Henseler et al., 2015), which means that discriminant validity is successfully established. Table 4 summarizes the correlation values against whom we determined the discriminant validity.

Table 4. Heterotrait-Monotrait Ratio (HTMT)

	DL	DLA	DLD	IRH	PE
DL					
DLA	.065				
DLD	.048	.010			
IRH	.094	.159	.133		
PE	.078	.124	.099	.092	

Note: DL: Digital Libraries, RAA: Resuming Academic Activities, DLA: Digital Library Acceptance, DLD: Digital Library Dependency, IRH: Improved Reading Habits, PE: Prior Experience

1. STUDY RESULTS & DISCUSSION:

5.1 Study Respondents:

A total of $n= 230$ students from $n= 5$ Public sector universities in Rawalpindi and Islamabad filled this survey. The analytic sample of current research involved the random selection of $n= 46$ individuals from each university, continuing their education through the internet during Covid-19 ($n= 230$), of which $n= 153$ (66.5%) were males, and $n= 77$ (33.4%) were female students. Also visible in **Table 5**, the average age of the participant is 24 years. Moreover, approximately 50.4% of respondents were undergraduate level students, and the majority (59.1%) were residents of rural areas.

Table 5. Frequency Calculation of the Demographical

Constructs	Mean	SD	Max	Min	f	%
Male	1.33	.473	2	1	77	33.4%
Female					153	66.5%
18-22					126	54.7%
23-26	1.83	1.707	2	1	62	26.9%
27-30					20	8.9%
31 or Above					22	9.5%
Undergraduate	1.53	.566	3	1	116	50.4%
Graduate					106	46.0%
Postgraduate					8	3.4%
Urban	1.59	.493	2	1	94	40.8%
Rural					77	33.4%

5.2 Test of Homogeneity of Variance:

The current research involves the Test of Homogeneity of Variance to examine any potential discrepancies based on respondents' demographical background. For this purpose, the One-way Analysis of Variance provided more robust support to test the demographical characteristics as there were only one independent and four dependent variables (Patel, 2015). **Table 6** below summarizes the outcomes of the One-Way Analysis of Variance. Here we can observe that there are not any differences based on respondents' gender ($p \geq .005$ **) and educational level ($p \geq .000$). However, the participants indicated apparent differences based on their age ($p \geq .402$) and residence ($p \geq .334$).

Table 6. One-Way Analysis of Variance

Constructs	Mean	SD	Levene Statistics	f	Sig
Male	1.33	.473	72.764	3.4	.005
Female				76	
18-22				1.027	.402
23-26	1.83	1.707	.548		
27-30					
31 or Above					
Undergraduate	1.5	.566	.394	287	.000
Graduate	3			.00	
Postgraduate				4	
Urban	1.5	.493	19.803	1.1	.334
Rural				9	

5.3 Coefficients of Determination- R^2

The Coefficient of Determination- R^2 is a valuable tool for conducting the Structural Equation Modelling and is used to affirm the measurement model's accuracy. The Coefficient of Determination- R^2 is mainly measured



by multiplying the correlation value with the same value. However, in SPSS, using the Linear Regression Program, Coefficients of Determination- R^2 can be easily obtained (Figueiredo Filho et al., 2011). Thus, the current study also involves the Coefficients of Determination- R^2 . Table 7 summarizes the results of Coefficients of Determination- R^2 . As visible that, the R^2 value of our two-variable named Resuming Academic Activities and Improved Reading Habits is ranging between .901-.874, there is a more substantial predictive power of the proposed study model.

Table 7. Coefficients of Determination- R^2

Constructs	R^2	Correlation Status
RAA	.874	Strong
IMR	.901	Strong

Note: RAA: Resuming Academic Activities, IRH: Improved Reading Habits

5.4 Hypotheses Testing: Path Analysis:

As the current research involves Structural Equation Modelling, the researchers conducted Path Analysis to observe all the dependent variables. Unlike regression analysis, Path analysis provided a broader picture of the assumed relationships (Kite et al., 2018) between the exogenous (IV) and endogenous variables (DV). Besides conducting the Path Analysis (Value of Path Coefficients), the researchers also extracted the f -value and t -value. Table 8 below summarizes the results of Path Analysis and hypotheses testing. As visible, H1, H2, H3, and H4 are validated by data analysis so; we can claim that there is a significant relationship between Digital Libraries Acceptance and Resuming Academic Activities ($B = .086$, $p \geq .022$), Digital Libraries Acceptance and Improved Reading Habits ($B = .097$, $p \geq .000$), Digital Library Dependency and Resuming Academic Activities ($B = .047$, $p \geq .000$), Digital Library Dependency and Improved Reading Habits ($B = .256$, $p \geq .000$). However, the results rejected the fifth hypothesis, anticipating the mediating role of Prior Experiences regarding the relationship between Digital Library Dependency and Improved Reading Habits ($B = 1.537$, $p \geq .240$).

Table 8. Hypotheses & Conceptual Model Testing

Relationship	path	t	f	Sign
DLA>RAA	.901	2.308	1584.99	.022*
DLA>IRH	.923	2.893	2068.14	.004***
DLD>RAA	.949	1.359	2006.222	.000***
DLD>IRH	.451	5.244	728.99	.000***
DLD>IRH>PE	.083	18.360	1.387	.240

Note: DL: Digital Libraries, RAA: Resuming Academic Activities, DLA: Digital Library Acceptance, DLD: Digital Library Dependency, IRH: Improved Reading Habits, PE: Prior Experience

Hence, the results affirmed the Digital Library acceptance in Pakistan, and these outcomes are consistent with the study conducted by (Zawacki-Richter, 2021). As the researcher also found higher Dependency on ICT for educational purposes among German Students. Similarly, Digital Library acceptance and improved reading habits are also compatible with the investigation (Verma & Sonkar, 2013). As noted, young students prefer internet-based reading as part of new reading and Learning. For these youngsters, Digital Libraries are an essential source of improving their reading habits. Likewise, the students indicated their Digital Library dependency and usage during Covid-19 as a source of eLearning and improving reading skills. These results are also consistent with the research conducted by (Parikh et al., 2020), as the respondents indicated book reading as a time-killing hobby during the lockdown situation.

Thus today, students with high usage of online resources are known as millennial learners due to their greater internet dependency. In other words, the young generation is using digital platforms to gratify their information, educational, entertainment, communication, and interaction requirements (Sheil & Lin, 2014). For (Kesici & Tunç, 2018), this higher reliance on the internet is an addiction for the students as they spend much more time with it. Along with the technological development and new devices such as mobile phones, laptops, tablets, desktops systems, and even improved internet services, this usage is increasing day by day. However, during the current pandemic, internet technology has much facilitated us primarily, students are getting enormous advantages. Despite the lockdown and closure of educational institutions, sustaining education through the internet is one of the most remarkable ICT contributions in education (Sathishkumar et al., 2020). Educational stakeholders and policymakers consider ICT in education as a part of the crisis management system; students also value the internet as a source of resuming their educational activities (M. A. Khan et al., 2021). As a result, a rapid transition to ICT based system deeply affected the students' academic activities (Coman et al., 2020). Similarly, Digital Libraries' role in supporting the eLearning is another significant contribution of ICT during the Covid-19 outbreak. As mentioned earlier, the execution of social distancing measures and lockdown led to the closure of standard libraries, library administration worldwide upgraded, modified, and even more efficient access to Digital Libraries (Neog, 2020). Nevertheless, the adoption of Digital Libraries did not end here to mitigate the impacts of Covid-19; also, the local education systems witnessed an increased enthusiasm towards eLearning adoption and Digital Libraries' Dependency among the university students. Consequently, ease of access, ease of use, higher availability, and treasure of both educational and other books also improved the students' reading habits (Sadia et al., 2020).

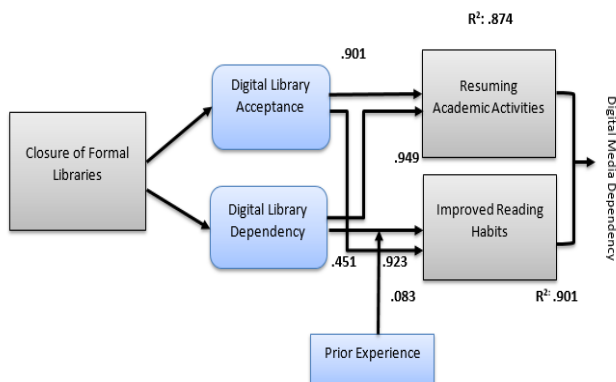


Figure 3. Results of Path Analysis & Coefficients of Determination- R^2

Significantly, in a country like Pakistan, where eLearning was considered less effective than conventional Learning, the adoption of Digital Libraries helped mitigate all the educational challenges (Sadia et al., 2020). However, before the rise of the Corona Virus pandemic, Digital Library acceptance and Dependency were an underrepresented phenomenon in Pakistan. Similarly, there is minimal research on digital information resources and eBooks. In such a situation, the Covid-19 also accelerated the consideration towards Digital Libraries as a source of sustaining education during the crisis (A. Khan et al., 2017). An example of Digital Library adoption during Covid-19 can be seen from the launch of more than 100 million online books available from Sindh's Digital Library. Sindh Culture, Tourism, and Antique Department provide free access to millions of eBooks, periodical, and journals to the reader from all over the world. As noted by (Rafiq et al., 2021), libraries' stakeholders fully recognize their collective and individual responsibilities in society. They play their crucial role in increasing digital literacy and information among online users (Alnaser et al., 2020) in Pakistan. They are continuously upgrading the system, which predicts a better future regarding digital literacy and education for all in the country (Sadia et al., 2020) (Hussain, 2020).

6. SUMMARY & CONCLUSION:

This research examined the Digital Libraries acceptance and usage as one of the leading pathways to sustain education during Covid-19 and its impacts. The researchers employed a cross-sectional design as the research was based on a short period with greater generalizability of results. Applying Path Analysis to affirm the strength and occurrence of presumed relations further effectively validated the study results. However, the Covid-19 outbreak raised several questions concerning the credibility of traditional education for crisis management. Especially, in Pakistan where ICT usage in education was marginalized, the current integration of ICT in education heralds the usher of a new era where education will be available with just a single click. Likewise, the Dependency on ICT also highlighted the role of Digital Libraries in education and improving

critical evaluation skills due to the greater availability of books and journals through an online database. Nonetheless, Digital Libraries will also provide educational facilities even after the Covid-19, leading to the even greater significance of Digital Libraries for internet users, especially the young students in Pakistan.

RECOMMENDATIONS & CONTRIBUTIONS:

Despite having some limitations, such as sample selection from only two cities, online surveys, and limited attention to Digital Library usage, this study also made three notable contributions.

- **First**, the researchers utilized a self-proposed study model that can be used in future investigations. The study model can guide other researchers to examine the Digital Library acceptance and its impacts, especially during the emergencies like Covid-19.
- **Second**, choosing Digital Libraries will also highlight their importance for eLearning and general reading habits. As Digital Libraries are an essential source of sustaining the learning process, highlighting their usage is of greater significance.
- **Third**, addressing Digital Libraries as a part of the crisis management system will further raise their importance in the formal education system. Here we can assume their role as mainly supporting both conventional and eLearning systems across the world.

Thus, the researchers recommend more investigations to discuss Digital Library usage and their potential impacts. Especially in other geographical regions where the healthcare crisis is hampering the formal educational activities, leading to the closure of traditional libraries.

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