

Abrupt Shift From Offline To Online: Exploring The Digital Divide In The Adoption Of Online Education During COVID-19

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Abstract: The paper explores the digital divide in the adoption of online education during COVID-19 pandemic at middle level of public schools in Islamabad. In 2020, the closure of educational institutions due to the ongoing COVID-19 epidemic in Pakistan led to an unplanned shift from traditional learning to a setup that exclusively includes digital education and learning. This sudden change underlined the digital divide as a main barrier in online teaching and learning process. The authors investigated the digital divide with a variety of indicators to look for patterns (i.e., internet access, digital devices access and socio-economic barriers) and explored the different national characteristics that contribute to the level of IT connectivity. In this paper, we adopted the qualitative study. A purposive sampling technique was used to select the participants of the study. The sample for the semi-structured interviews consisted of 15 teachers and 30 students from public school and we also observed 4 online classes (via WhatsApp) consisting of 40-45 students each. Observations, focused group interviews and semi-structured interviews were conducted ethically with obtaining the prior permission from teachers at public school. A conceptual framework based on Van Dijk' digital divide theory, was used to collect and analyze the data. It is concluded that the sudden change in learning amid the Corona virus crisis has posed a lot of digital challenges to the system as the majority of students do not have their own computer or internet access.

Keywords: COVID-19, Online Classes, Digital Divide, Student's Access

Introduction

In November 2019, a pandemic disease called COVID-19 broke out unexpectedly in the Wuhan city of China and spread rapidly across the China as well as other parts of the world. The outbreak of COVID-19 caused great chaos of human suffering and great economic and educational obstructions in the world. On February 26, Pakistan confirmed its first two cases of corona virus. A former state minister of health of Pakistan, former director of health care system of World Health Organization, and the prime minister's special assistant for health, said in a tweet that "I can confirm the first two cases of corona virus in Pakistan" (Mirza, 2020).

After these first two cases, within the next week many more new cases were confirmed in Pakistan.

The COVID-19 pandemic had disturbed the education system in all over the world and most importantly, it intensified the overall education crisis. In particular, it increased inequality among students in the education sector and had the most negative impact on the vulnerable learners. Ali and Shams (2020) explained that in view of the rapid spread of the corona virus, the NCOC had recommended that all schools, colleges, and universities across the country be closed from March 2020. National Coordination Committee on the recommendation of Inter Provincial Education Minister's meeting held on 26 March, it was decided that all educational institutions in the country including private and public schools would remain closed till 31 May, 2020 (Government of Pakistan, 2020). Likewise, all government schools in Islamabad were closed in March. After that, this lockdown lasted a long time because Pakistani government has decided to close educational institutions till April 5, 2020, in response to the COVID-19 pandemic. Thereafter, in order to continue the education of students, HEC orders the continuation of educational activities through online classes keeping in view the directive issued by NCOC regarding COVID-19 precautions. This was the time when online education was not very popular in Pakistan and people were not in favor of online education. Furthermore, from a cultural point of view, face-to-face education has always been part of our tradition. As a result,

Not just in Pakistan, but across the world, the COVID-19 outbreak has had a major impact on traditional schooling. Although the government and educational institutions have jointly decided to resume education without jeopardizing the health of their students and all the staff members, they have chosen online education as an alternative, but this alternative method does not seem to be as effective as the traditional educational approach. Making the decision to drastically alter the mode of teaching and learning in education was not easy to implement. According to Aboagye, Yawson and Appiah (2020), in this pandemic era, students were not prepared for online learning. As a result, if pupils are not well prepared to study online, they are innately unmotivated and unwilling to learn. To guarantee that some degree of learning continued at home, several governments and business organizations turned to digital learning initiatives like Tele-school and Tele-taleem. To give teaching and information to its pupils, a variety of private educational institutions employed digital platforms such as WhatsApp, Zoom and Google Classrooms etc.

Teachers and students faced numerous obstacles when they transitioned from offline to online mode. One of the most major problems the education sector encountered in implementing online education was digital divide. In the intervening time, when it was decided to shift educational activities from face-to-face to online classes, the lack of digital devices, internet connectivity, skills, awareness, and encouragement deprived the at least one-third of students (UNESCO, 2020). This paper explored the digital divide in the adoption of online education during COVID-19. Millions of students were unable to take online classes due to lack of internet connection and were unable to use them properly. As a result, the emphasis of this research was on the digital gap that students are likely to experience in online learning.

Online mode of learning isolates kids from the rest of the world, preventing them from engaging and participating as lifelong learners. It has its own side effects, but it is important to

realize that many online learners still have access issues to digital technologies. In order to bring a more equal digital world to underdeveloped cultures, digital devices, internet access, and economical data bundles are now being supported as mediating variables, but the reality is far more complicated.

Every day that a school was closed meant a major loss in human capital development, with serious long-term economic and social consequences. While this was a rigorous stress test for educational systems, it also provided an opportunity to explore alternate educational options. Despite the availability of a wide range of digital technologies (i.e., Zoom, Google Meet, WhatsApp, etc.), teachers mostly utilized WhatsApp. Teachers cited a lack of digital infrastructure (e.g., sluggish internet access, unaffordable internet data packages and power outages) as a reason for their selection, as well as the fact that they were more familiar with WhatsApp than other digital tools in their daily lives.

This "digital divide" is the difference between those who know a lot about technology and have access to it and those who don't. These digital distributions can perpetuate and exacerbate socio-economic and other disparities for already disadvantaged groups. The term "digital gap" or "digital divide" refers to inequalities in access to digital devices or technologies as well as differences in Internet usage for a number of reasons. In addition, the differences that exist between individuals, families, businesses, and geographies in different socio-economic contexts are also a source of "digital distribution".

Internet and digital technologies have become essential for education around the world. Despite the growing importance of the Internet, disparities in digital skills and usage persist in many nations according to the socio-economic class, a trend known as digital divide or inequality in digital learning. The digital divide is a complicated issue and multifaceted phenomena that is difficult to address. It focuses on various dimensions of communication and digital technology access such as physical access, motivation, skills, and actual usage access to the digital technologies.

People now live in the information era, also known as the information society, which is related with society's modernity and globalisation. Van Dijk (2005) describes that (as cited in Xiaomei, 2008) with the introduction of the World Wide Web and multimedia computers, the issue of digital divide became more widely recognised in communities throughout the world. The digital gap is not a new phenomenon. It was popular to talk about the information rich and the information poor in the late 1980s and early 1990s. Then came the public Internet, which made the information divide between the "haves" and the "have-nots" more obvious. Measurable inequalities in computer ownership, access to information technology, and baseline metrics of Internet connectivity have highlighted the divide between elite and marginal people inside and between civilizations. They bring the rhetoric of information rich/information poor to life, assisting in bringing the issue of distributive injustice to the attention of those who are meant to matter. As a result, the phrase "digital gap" refers to disparities in information technology access.

Statement of the Problem

In March 2020, the closure of educational institutions due to the ongoing COVID-19 pandemic in Pakistan led to an unplanned shift from traditional learning to a setup that exclusively

includes digital education and learning. This sudden change underlined the digital divide as a main barrier in online teaching and learning process. That's why, the current study was undertaken to find out the "abrupt shift from offline to online: exploring the digital divide in the adoption of online education during COVID-19".

Objectives

The objectives of the studies was:

- To investigate the motivation of students for using digital technologies in the adoption of online education during COVID-19.
- To highlight the digital access for students in using digital technologies in the adoption of online education during COVID-19.
- To explore the digital skills and usage of digital technologies in the adoption of online education during COVID-19.

Research Questions

The research questions of the study was:

- How did motivation factor effect the use of digital technologies in the adoption of online education during COVID-19?
- How did digital access effect the use of digital technologies in the adoption of online education during COVID-19?
- How digital skills and use of digital technologies effect students' participation in the adoption of online education during COVID-19?

Theoretical Framework

Digital divide is a multifaceted and ever-changing phenomenon. There are several digital divisions that are constantly shifting. All these stages and divisions show that digital inequality replicates all kinds of existing social inequalities. Access to digital media, such as computers, android mobiles, and the Internet, is a process that begins with a desire to use these tools and a favorable attitude toward them. People will then require physical access to obtain a computer and an internet connection. This is insufficient; the next step is to create a set of digital abilities. Following this phase, users can utilize any programmed that is appropriate to them.

The key goal was to ensure that everyone has access to a computer and an Internet connection, this is referred to as the First Level of digital divide. After some time, both academics and policymakers concluded that digital literacy or skills, and usage are increasingly essential when discussing digital inequality, this is called Second Level of digital divide. This process of four phases of access is the core of a theory about the digital divide called Resources and Appropriation theory developed by van Dijk's in 2005 and this theory characterizes the most comprehensive and theoretically grounded attempt to comprehend the multifaceted phenomenon of digital divide (Scheerder, van Deursen, & van Dijk, 2017)

The following diagram represents the 4 interconnected underlying factors of van Dijk's digital divide theory, called resources and appropriation theory (van Dijk, 2005). Van Dijk's

model of successive stages of access is the sub part of van Dijk's resources and appropriation theory of digital divide.

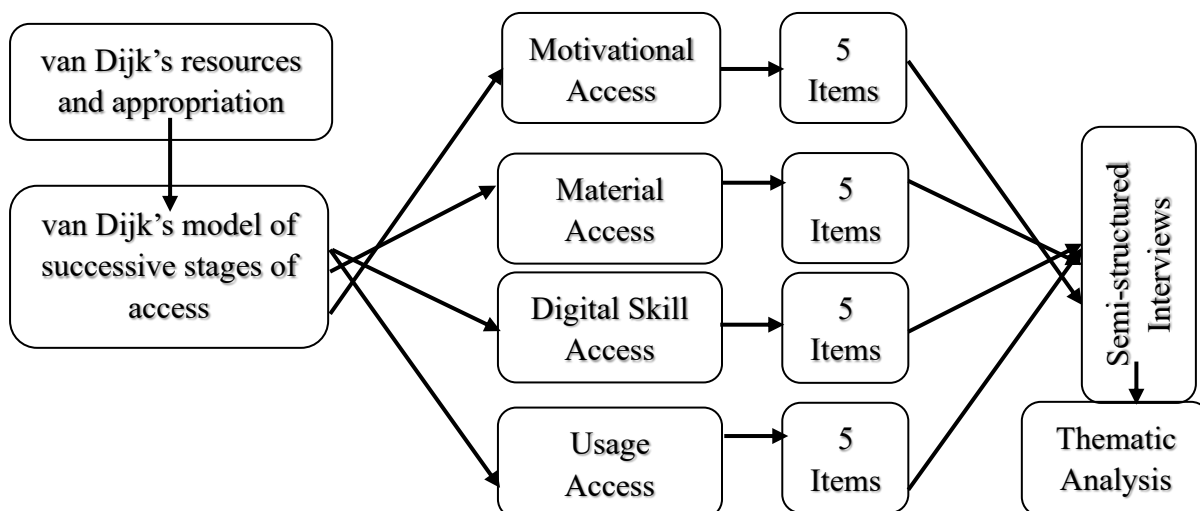


Figure 1.1 Theoretical Framework of the study on the base of van Dijk's model of successive stages of access

Motivational Access

Motivational access is the initial and most basic requirement in the process of gaining access to digital technology, computers, and internet. In concise, it denotes a person's desire to "accept, acquire, understand, and employ" digital technology (van Dijk, 2005). To put it another words, motivational access refers to a person's mental preparedness to own and use digital technology. Van Dijk describes that lack of motivation to embrace emerging technologies (i.e., use of mobile for online classes) has always been at the top of the list of issues preventing technology from being adopted. During the COVID-19 pandemic in Pakistan, when the education system shifted from conventional education to online education, there were a huge number of individuals who 'have-nots' but also 'want-nots' the digital technologies in education. They claim that they don't want, don't like, can't handle, or they don't have time to utilize them, especially computer and internet connection (van Dijk 2005). The factors of motivational access are related to mental, cultural, material, and psychological in nature.

Material access

The second level, material, or physical access, is what the concept of access to digital devices was originally thought to be. It has to do with the possession or permission to use computers, the Internet, and other digital gadgets. A person may have physical access to digital technology at home, work, school, or any other public location such as a library (van Dijk, 2005). As infrastructure develops, digital technologies become more economical and ubiquitous (Xiaomei, 2008) helping to solve the problem of physical or material access. This type of access is very important and an essential condition to develop digital skills and ultimately utilizing digital devices to s Physical access refers to the possession or permission to use digital technologies such as computer, the Internet and other digital devices and resources. People

consider that digital divide can be bridged by providing everyone with a computer and internet connection (van Dijk, 2005).

Skills access

After the challenges with the previous two phases of digital device access (motivational access and physical access) have been resolved, the skills access stage begins. Skills access, in basic terms, refers to a person's capacity to study, operate, and manage digital technology, software, and an internet connection. After obtaining permanent physical access to a computer and Internet connection, an individual must develop digital skills either in a formal learning setting or via practise (van Dijk, 2005). Scheerder, van Deursen and van Dijk (2008) have strongly underlined the levels of digital skills to understand digital divide, focusing on individuals' "can's and can-nots" with digital technologies.

Digital skills, according to van Dijk (2005), encompass not just the capacity to operate computers and other relevant digital technology, but also the ability to strategically explore, choose, and use information to advance one's standing in the community. Operational skills, informational skills, and strategic skills are the three tiers of digital talents he suggests. "Operational skills are the abilities required to run computer and network hardware and software," he says, "inside the digital skills succession." Information skills are the abilities to use a computer to find, select, and process data. The capacity to study, operate, and manage digital technology, software, and an internet connection is referred to as skills access (van Dijk, 2005).

Usage access

Usage access is the final level of the many types of digital technology access. An individual may meet the previous three levels' basic requirements, if he or she is motivated to own and use a computer and internet, has physical access to them, and understands how to use them, but if he or she says, "no need, no occasion, obligation, no time, or no effort to actually utilize them" it's called usage access in digital divide (van Dijk, 2005). Individuals with this degree of access are more likely to use digital technology.

Individuals must first be psychologically or mentally ready to own and utilise a digital gadget before they have physical access to it, according to van Dijk's concept of successive stages of access to digital technology, material access is dependant on motivational access. The next stage skills access refers to the ability to study, operate, and manage digital technologies, software, and an internet connection. The final level of access, it is referred to as usage access when a person refuses to use digital technology while having access to previous all three stages.

Literature review

The 'digital divide' has been identified as a problem at every level, including municipal and regional government. The UNDP Pakistan National Human Development Report 2020 on inequality examines Pakistan's digital gap, pointing out that even though access to digital services is expanding, but just 45 percent of Pakistanis have cell phones, and only 17 percent utilize the internet (United Nations Development Program, 2020). According to the Adedoyin and Soykan (2020) due to the fact that online learning is fully dependent on technological

devices and the internet, teachers and students with poor internet connections may be deprived of access. The dependence of online learning on technological devices, as well as the provision of such devices, posed a significant question for educational institutions, teachers, and students.

Only nations that are technologically progressive can attain the goals of successful distant learning. That is why the goals of distance education in Pakistan was not being achieved successfully. The abrupt shift from traditional educational techniques to remote learning tactics has shown to be difficult for educational institutions, but it has also proven to be a test of organizational adaptability (Basilaia & Kvavadze, 2020). Most public schools suffered and encountered digital issues during the COVID-19 pandemic because they did not handle the instructional content properly and did not have any training in this area (Azubuike, Adegboye, & Quadri, 2020).

The current state of online education in underdeveloped nations such as Pakistan, where the infrastructure is unstable, is not generating good results. Many factors influence how students participate in their learning, including communities, places, specific times, social situations, and, notably in online education, communication devices, technical infrastructure, and home spaces. Most students do not have consistent access to the required technical prerequisites of an online education plan, such as a steady and inexpensive internet connection, laptops or android cellphones, electricity, and so on (Iqbal, Farooq, Shoeb & Rehman, 2021). They further describe that the abrupt shift from traditional classroom education to online learning has left pupils with a completely different understanding. The majority of less fortunate students who live in undeveloped or rural locations, they lack access to the internet and other necessary technology to continue their education. Salam, Jianqiu, Pathan and Lei (2017) describes that the lack of digital devices, and stable internet access obstructs and hinders online learning development, particularly for those who are less advantaged and lived in rural regions or belong to Pakistan's marginalized populations.

The 2020 pandemic's lesson will drive a generation of new laws, rules, platforms, and solutions for future situations, when countries, governments, and populations will be better prepared than they are now. According to Organization for Economic Co-operation and Development (2020) the phrase "digital divide" refers to the disparity between individuals, households, enterprises, and geographic areas at various socioeconomic levels in terms of access to digital and communication technologies as well as their usage of the Internet for a number of purposes.

As in March 2020, education was thrown into turmoil when schools were abruptly shuttered in Pakistan, leaving decision-makers, parents, schools, and students in a state of chaos, which created a huge gap of inequality in every walk of life. Economic and social issues are seen to be the main causes of the digital gap among pupils. To avoid the digital gap from being exacerbated by economic factors, digital tools must first and foremost be affordable to all socioeconomic groups (Gündüz, 2010). Furthermore, it is urged that these technologies be made more accessible to people with even less chances.

Methodology

The research used a qualitative, phenomenological design approach. The goal was to obtain insight into the digital divide issues that students at middle level experienced as they

transitioned to online learning during COVID-19 pandemic. A phenomenological approach was selected to conduct the study. The present study was designed to explore the experiences, attitudes and needs of participants regarding the digital divide during the COVID-19 at elementary level of school in public schools of Islamabad Capital Territory (Creswell, 2012). The purpose of this phenomenological study was to describe the central phenomenon of the study for the participants at the site.

The current study used a 20-item interview protocol to explore the digital divide in the adoption of online learning during COVID-19. The interview protocol was designed by the authors according to the conceptual framework based on the van Dijk's digital divide theory. The study was delimited to the middle level of public schools in Islamabad.

Sample

A purposive sample of 15 elementary school teachers and 30 middle level students with the experience of online teaching and learning during COVID-19, participated in this phenomenological study. To select the participant purposive sampling technique was used with maximum variation strategy.

Data Collection

In this study "semi-structured interviews" and "observations" were conducted to explore the selected factors (i.e., motivational access, material access, digital skill, and usage access) from the van Dijk's resources and appropriation theory of digital divide, as the aim of this study was to explore the digital divide in the adoption of online education during COVID-19. Data was collected through face to face semi-structured interviews and observations.

Interviews

The interviews were conducted in an ethical manner by requesting consent from the participants ahead of time. They were told that their information would be kept confidential and that they would be reported in an ethical manner. For convenience, 2 focused group interviews were also conducted with 20 out of 30 students. The interviews were recorded through mobile recorder and each interview was lasted approximately from 15 to 20 minutes. There were only a few cases in which the interviewer asked us not to record, then we noted the answers. Similarly, participants were free to speak in the language of their choice, without being pressured to speak in English. During the interview, all the concerns and issues under discussion were focused on the experiences of the interviewers.

| S. No | Department | Level | No of Participants |
|-------|---------------|----------------------------|--------------------|
| 1 | Public School | Teachers from middle level | 15 |
| 2 | Public School | Students from middle level | 30 |

Observations

Observation was the second key tool to collect the data for this study. The researchers was immersed in the setting of the study. At middle level, 4 online classes was observed (via WhatsApp) and each class was consisted of approximately 30-35 students. The researcher first

asked the teacher for permission to join the WhatsApp group of classes then the researcher observe the 4 class via WhatsApp and 1 class via zoom. After the observations full notes were prepared by the researcher.

Data Analysis

Digital recordings of the interviews were transcribed verbatim (in exactly the same words as were used originally) in letter. After that the transcription of the data (i.e., interview transcription and observation notes) was analyzed manually by using a qualitative technique such as codes, categories, and themes. Merriam's (1998) techniques were used to analyze the qualitative data. It followed the Merriam's (1998) five steps in analysis: transcription, develop patterns through coding and creating categories with diverse themes, interpret the data in light of the study objectives, research questions, and theoretical framework.

Findings and Discussion

The interviews and observations provide insight on the digital divide in the adoption of online education during COVID-19. This study explored online education landscape during COVID-19 at middle level of public schools of Islamabad and the impact of online classes on learners' and teachers' experiences. The data not only sheds light on how and why digital divide was created in the adoption of online education during COVID-19 pandemic, but it also provides useful understandings and explanations for such practices. After the analysis of data 12 sub-themes was emerged from the data, then these themes were divided into 4 major themes (factors) of the van Dijk's digital divide theory such as motivational access, material access, digital skills, and usage access.

Motivational Access:

One of the major factors of the theoretical framework was "motivational access". The lack of motivation among middle school pupils to embrace emerging technologies has long been cited as a barrier to online classrooms embracing technology. The major themes that have emerged as material access are, unwillingness of the students, lack of satisfaction, time or scheduling issues, resistance to change or internal resistance to using, etc.

One of the major themes that emerged from the data was the lack of interest and involvement of the students during online classes. The result of the students' reluctance to adopt the new method was that the whole method of online education could not be implemented. However, the non-participation of students in online classes and the lack of interest of students in online classes was strongly noticed and this was pointed out by all the participants. A teacher said that "lack of interest and participation of students in online classes is an issue that we face in every online session".

A student participant reported that,

"In our class, the WhatsApp was the only mean of teaching and learning" .

Another student said that "the teacher used to give homework to the students through voice message or written message, which was not interesting at all".

“Students do not take classes with passionately; I have 35-40 students in my class but whenever I take classes, only 7-10 students in my class attended the online session only.”.

During COVID-19, as the government decided to continue educational activities through online sources such as WhatsApp, Zoom, etc. Scheduling between teachers and students was one of the biggest problems for online classes, so students were not motivated to take online classes. A teacher stated that “ usually, I had the seventh period in school, so I attempted to take the online period at the same time. You know, most of the students were unable to attend because they did not have mobile phones at that time” (MLT-2, Interview, April 20, 2021).

A teacher mentioned that,

“I always try to take my online classes during school timing, but most students do not take classes during the day....Whatever work I give them, they always ask questions at night, and send so many messages that we teachers often receive complaints from parents that the students are not using the WhatsApp group properly” (MLT-1, Interview, May 25, 2021).

A teacher was conducting oral test of students through video call. I noticed that this teacher took 2 to 3 days (morning to evening) to take test all the students due to unavailability of digital devices....actually most of the digital devices are owned by adults, so they leave home in the morning on duty and return in the evening (Observation, May 06, 2021)

Material Access:

Due to a lack of physical access, most students were unable to use digital technology such as mobile phones, computers, the Internet, and other digital devices and resources in order to take online classes. The major themes that have emerged as material access are, non-existent of digital devices, family size determines the level of opportunities and unavailability of internet when needed.

It was not easy to implement a sudden shift from traditional educational activities to online especially at middle level. In fact, not every student has a digital gadget to take online classes. There were very few children who had easy access to digital gadgets or who were able to take online classes easily. A student said, “umm... as a student I had a lot of problems in online classes when I started to take online classes the first problem, I faced was the device problem and then the internet....before that, we didn't even have the internet in our house” (MLS1, Interview, October 15, 2021).

An interviewee informed that,

“There are about forty-five students in my class when I asked them to give me one of their parent’s WhatsApp numbers. So, there were only 20 to 25 students who gave me their numbers and the rest of the students said ma'am we don't have a WhatsApp number, don't have android phone so how can we give you the number?”

A middle level student stated that,

...when the lockdown was enforced, we all went to the village except Father, there is no internet in our village at all, and I came back after about 2-3 ... then I found out that there were online classes (MLS5, Interview, October 18, 2021).

In fact, family size also determines the level of opportunity for the students to use digital devices to take online classes. A focused group interview was conducted with middle level students, during the interview a student mentioned that “we have 2 mobiles in our home which are easily available, but we are 5 siblings, if 2 of us are taking their classes then the rest have to wait their turn”. Another student replied that “ we have 2 mobiles in our house, one with father and one with mama. When there were online sessions, mama's mobile was mostly available, but when we siblings had online classes at the same time, so it was difficult to manage.”

Since the education system has changed from offline to online, internet connection has been a big problem and without it is impossible to study or take classes online. When the internet doesn't work, a new problem arises every day when it comes to taking classes. Most people use data packages, which often leads student to complaints that "the data package was expired, and there was no one in the house who could re-package the internet data." A student participant said that “we have mobiles, but data packages are limited, data packages are so expensive, we can't afford to re-package it again and again, so we can't take classes on a daily basis.” An interview was conducted with a class teacher, she said, “let me tell you, there are some students who have never even attended a WhatsApp group chat, there are girls in my class who do not have a mobile phone with internet at home”.

Digital Skill Access:

One of the most prominent difficulties was a lack of digital skills, which was exacerbated by poor user-friendliness and a lack of education or social support. The major themes that have emerged as digital skill access are lack of technical expertise, lack of operational skills, digital device literacy, etc. During this abrupt shift from offline to online, having access to digital skills has been very important for both teachers and students. Unfortunately, the digital skill was the most important thing that was lacking during these online sessions. A teacher respond that,

“The phone itself was a source of frustration for the students. If I talk about my experience, I did not get any good response from the students in terms of study. They were always wasting their time even during the online class and they had no passion for learning” (MLT-6, Interview, October 18, 2021).

An interviewee commented on the digital skill access that”

“Every time I send a message to my students that, you guys have to memorize a certain chapter and write it down and then scan this written test and send it to me...so most of the students didn't answer or questions...umm... sometimes some parents would take their children's test to school on their own... (MLT-9, Interview, September 28, 2021) I noticed that some of the middle level students had come to the school to submit their homework, and in the corner of the school corridor, two teachers were collecting work from them, and was passing it to other teachers (Observation, May 11, 2021)

An interviewee added,

“No one in our house knew how to scan my test, so I had to come and give it to my teacher manually “ (MLS4, Interview, May 11,2021).

Another interviewee said,

“My teacher was saying I can't check your tests online, come and give it yourself” (MLS3, Interview, May 11,2021).

Usage Access

The study discovered that perceived sources of social support (family, friends, and significant others) affected the lack of or unequal distribution of important usage possibilities. The major themes that have emerged as usage access are personnel not trained to support, family norms as a barrier, gender based usage access, lack of interaction among teachers and students, etc.

Learning online eradicates the reluctance of face to face contact which adds a little extra confidence but is detrimental students' real life performance. This period has had a very negative effect on the behavior of students. No one always gets to perform behind the scenes. (MLT-5, September 15, 2021)

Regarding the usage access a student from 8th grade informed that “I tell you...I have all kinds of digital devices in my house, but our schoolteachers did not take any of our online classes. We haven't had any sessions on WhatsApp in these two years and we have never had a class on Zoom either”. Likewise, the way teachers and students dealt with this sudden change was quite similar. Even those who had physical access to digital devices, but they were lacking motivation and usage access. An interviewee commented that “...my subject was Islamiyah; therefore, I only assigned the students homework for a few days on WhatsApp, and... If I tell you the truth, I have never taught students on Zoom”. She added “because I don't know how”.

Conclusion and Recommendation

The conclude that COVID-19 outbreak has wreaked havoc on conventional educational processes throughout the world, and Pakistan, as a developing country with an unstable digital infrastructure, has suffered significant educational losses. Despite the fact that Pakistan's government has selected online education as a means of resuming education without risking the health of its students and employees, however, due to digital divide in Pakistan, online education has not shown to be as successful as conventional schooling. Education service delivery emerged as one of the hardest hits and most staggering of the challenges during Covid-19. This study sheds light on some of the digital divide concerns that arose in the education sector (e.g., motivational access, physical access, digital skills, and usage access) when all the educational institutions were required to switch from face to face to online mode of teaching and learning during the COVID-19 shutdown.

In Pakistan, schools were abruptly closed in March 2020 due to COVID-19 and then reopened in mid-September 2020. During this period (March 2020 to mid-September 2020), there was not online or offline communication between public school's students and teachers because they was not digitally and mentally ready to continue the teaching and learning process. This situation highlighted the digital divide as a major cause of inequality in access to education. After that when the schools closed again, they decided to continue their online

educational activities via WhatsApp, zoom, and google meet etc. The following were the most common themes that emerged from the data:

- Lack of suitable digital devices (e.g., non-existent of digital devices, small phone displays, and need to share the devices with siblings)
- Internet concerns (i.e., sluggish speed, weak connectivity, and low signal issue)
- Power issues (i.e., frequent power outages owing to load shedding), and students raised network challenges (i.e., unaffordable data packages)
- Lack of training and support

The COVID-19 epidemic was a really difficult time for both students and teachers. Students were deeply affected by this period. First of all, it has been a very difficult process for teachers and students to step into the digital world, leaving behind the traditional learning. Due to a lack of digital infrastructure and familiarity with the new method of education delivery, many of them were unable to continue their study. The study conclude that, the student faced a lot of digital divides in the adoption of online education during COVID-19 pandemic. According to the first stage of van Dijk's digital divide, the data reveals that both teachers and students were not encouraged to adopt online classes. At the second stage of van Dijk's successive model of access, physical access found that many pupils lacked access to the Internet, digital devices, and learning apps. Digital skills and use difficulties highlighted a lack of skills and competences regarding the appropriate use of digital technologies and devices among teachers, students, and parents.

Despite the availability of several digital technologies (e.g., Zoom, Google Meet, WhatsApp, etc.), teachers mostly preferred WhatsApp. This preference was highlighted by teachers due to a lack of physical access or digital infrastructure (e.g., nonexistent of android mobiles r computer, sluggish network access, power outages, and unaffordable internet data packs) and lack of skill access (e.g., do not know how to use properly) as well as the fact that they were more familiar with WhatsApp than other digital tools in their everyday lives. This study concludes that any internet, smartphone, computer, or laptop-based method to learning in pandemic, and even normal, times will undoubtedly fail in the face of inequalities in the form of both the first and second level digital divides, according to this study.

The study found that it is difficult to reduce digital inequality without first addressing the underlying cause. As many observers witness growing digital, economic, and social inequality in many parts of the world along with the education sector, we must accept the truth that bridging the digital divide is an uphill struggle that demands combating both digital and social inequality at the same time. The recommendations of the study are as follows:

- In the field of education, the government of Pakistan can properly monitor the infrastructure of the network and take regular steps to increase the competitiveness of the network.
- The government of Pakistan may use relevant avenues of communication, such as the media, education systems, public awareness campaigns, and awareness or training programs, to raise the knowledge regarding digital media and online classes.

- At the school level, training programs may be conducted to enhance the skills of students and teachers in the use of digital technologies, both online and offline.
- The government can hire professionals in the field of education, so that they can not only develop a system of online classes in all institutions, but also train students and teachers.
- Ideally, the ministry of education may push public schools in Pakistan to use a hybrid approach, such as blended learning, so that students in the future would be able to study through both traditional and online methods.

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