



# Exploring the effect of Covid-19 on usage of virtual library services at the University for Development Studies Library

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Received: 12th April, 2022 - Revised: 6th November, 2023/6th June, 2024 - Accepted: 18th June, 2024

DOI: <https://dx.doi.org/10.4314/glj.v29i1.4>

## Abstract

*Providing access to resources for teaching, learning and research is core to services rendered by libraries and librarians. The advent of the novel Coronavirus onto the global landscape has had major implications for libraries. This study was carried out to explore the effect of the Covid-19 pandemic on the usage of virtual services and platforms at the University for Development Studies (UDS) Library. The study adopted a quantitative method by conducting a comparative analysis of patrons' usage of virtual library services prior to and during Covid-19. The usage statistics from the UDS library's various virtual service delivery platforms constituted the data for this study. The findings revealed significant increases in usage of the virtual library's services across the selected platforms and usage patterns, which provides statistical data on changes in usage of virtual platforms for library service delivery to enhance planning. The way forward is to intensify trainings to ensure that users have access to these platforms and services while addressing limitations that interrupt service provision.*

**Keywords:** Covid-19, University for Developments Studies, Physical Services, Virtual Service Platform, Patrons, Library Services

## Introduction

On 11th March 2020, the World Health Organization (WHO) declared the newly discovered Coronavirus a pandemic and a public health emergency. This virus spread rapidly among populations of countries, recording high death rates. Covid-19 mostly spreads when an infected person coughs, sneezes or exhales and the droplets are inhaled or settles on the eyes, mouth or nose without immediate disinfection/sanitisation or washing of the area. Often, people who get infected have symptoms such as fever, dry cough, headache, tiredness, however, some people recover without any treatment (Ankamah et al., 2021). The WHO proposed measures to curb and reduce the spread of this deadly virus in the form of safety protocols. Prominent among these safety protocols

was the restriction of movement and social distancing. These restrictions led to worldwide closure of schools and offices (Cucinotta & Vanelli, 2020). This greatly affected higher institutions of learning and academic libraries which serve as hubs of resources used by faculty, students and researchers (Connell et al., 2021). As such, many libraries were forced to migrate physical access to resources and services to virtual service delivery platforms. Hybrid libraries which were providing both physical and virtual services had to operate as digital libraries (Pokorná et al., 2020). Many institutions in Africa had to find ways of coping with these new changes despite all the challenges the situation presented (UKaid, 2020).

For most institutions of higher education in Ghana, the declaration of a nationwide lock down

on 15th March 2020 by the President of the Republic (United Nations International Children's Emergency Fund [UNICEF], 2020), meant a shutdown of physical access to education and a subsequent move to virtual modes of teaching and learning. For libraries serving these Higher Educational Institutions (HEIs), it became imperative to make use of virtual services to ensure uninterrupted support for teaching, learning and research. The effects of Covid-19 on higher educational institutions in Ghana was brought to the fore when these institutions could not readily respond to and immediately roll their academic activities online since most of them had still not introduced e-learning systems (Adzovie & Jibril, 2022). Consequently, many academic libraries which though already had some of their services online, still fell short of providing complete access to their services online. As a result of this shortfall, desperate measures were being taken to help bring these libraries up to speed on these online service provisions (Adzovie & Jibril, 2022).

The UDS library was no exception to the move from physical service delivery to virtual service delivery. Several virtual service platforms existed alongside the physical services to provide support services to library patrons. The virtual platforms include, instant messaging (chat-the-librarian), electronic mails, institutional repository, electronic journals, off-campus access, anti-plagiarism scans and social media. The UDS library did not have any subscriptions to electronic books at the time of this study.

### **Research Problem and Objectives**

The advent of the Coronavirus pandemic in February 2020 led to widespread disruptions to all sectors of economies the world over (Jackson et al., 2021). Libraries recorded closures and restrictions of physical access by patrons. To continue serving the information needs of users, many libraries moved all services, resources and engagements to virtual platforms (Medawar & Tabet, 2020). The UDS library, prior to Covid-19, had various virtual platforms augmenting the physical support services offered to users. With the closure of schools, the library shifted to serving users primarily through these existing virtual platforms.

This study therefore sought to answer the question on whether Covid-19 has indeed brought about changes to usage of these virtual platforms/services at the UDS library

To answer this research question, the following

objectives were investigated:

1. How has usage of virtual services changed due to the Coronavirus pandemic?
2. How has the UDS library managed the situation?

### **Literature Review**

Covid-19 has impacted greatly on higher education the world over. This is especially the case as higher educational institutions must navigate the altered environment as a result of Covid-19 by shifting from the traditional face-to-face delivery to online learning systems. The technology to support these new systems are quite expensive to acquire and to maintain. Meanwhile, higher educational institutions are currently experiencing budget cuts, which Covid-19 has come to escalate (Blankenberger & Williams, 2020). These new developments have exposed the shortcomings and challenges of the current educational systems and has emphasized the need for the development of digital literacies (Rashid & Yadav, 2020). Academic libraries being a significant part of higher education also, must reposition themselves in order to effectively support these new educational systems. This pandemic renewed the mission of academic libraries of not only having to assist learners use their systems but also to become digitally competent and information rich. Academic libraries now must act as mediators who would facilitate a new strategic vision that aims at making design for equity a core component of education (Martzoukou, 2020). All these services even though were being done by academic libraries, was on the minimal as such, they did not have the capacity to offer service completely online. However, academic libraries are achieving these by immediately boosting up the provision of a variety of virtual platforms. These virtual platforms are being used to perform their core functions to meet the information needs of their patrons. So, patrons were still able to access their libraries services remotely there by staying relevant to them in these trying moments (Pokorná et al., 2020). According to a study conducted in Swedish university libraries, digital communication has taken over physical communication due to the Covid-19 pandemic. It is therefore, important to invest in digital technology such as the use of artificial intelligences in the provision of timely responses to queries as well as equip staff with the necessary skills needed to provide services using digital communication channels (Temiz & Salelkar, 2020). Academic libraries in China, attached importance to service delivery amidst Covid-19.

WeChat and library websites were platforms that were constantly updated and used to provide patrons access to services and resources. However, more needs to be done to use the library's virtual service platforms to provide emergency information services (Guo et al., 2020).

Just as other aspects of human interaction, the traditional model of teaching and learning was highly influenced by the Covid-19 pandemic. Many institutions therefore, had to resort to electronic teaching. Libraries and librarians supported electronic teaching and learning by providing access to electronic resources using virtual and social media platforms (Tsekea & Chigwada, 2021). Also, the new normal for many libraries in Indonesia, was to support users despite restrictions caused by the pandemic while adhering to protocols that will not expose patrons to risks. However, challenges such as limited access to the internet affected service delivery (Winata et al., 2021).

Covid-19 exposed the strength of libraries in South Africa. This is because a distinction was made between libraries that could offer services virtually and libraries that could not. Digital libraries were identified as libraries that transformed the face of service delivery in academic libraries against Covid19 restrictions (Chisita & Chizoma, 2021). In Nigeria, a study revealed that while 87.96% of academic libraries provided access to online materials, 9.26% provided access to both prints and online materials (Fasae et al., 2020).

However, another study revealed that apathy to adapt technological skills as well as lack of technological infrastructure affected the ability to exploit the use of digital platforms by librarians to address the needs of users (Ifijeh & Yusuf, 2020). It is therefore necessary to invest in infrastructure as well as acquire skills to effectively use virtual service platforms. This can be achieved by collaborating with stakeholders to invest in ICT as well as provide information literacy trainings to both librarians and patrons to deal with crisis (Tsekea & Chigwada, 2021).

The story is no different in Ghana. A study by Tuffour et al. (2021) reported that the Covid-19 pandemic has significantly affected education in Ghana. They indicated that the pandemic has severely compromised the ability of educational institutions to finance their operations. They reported that educational institutions are unable to adequately provide the needed equipment to facilitate online education. Again, there is the challenge of students and parents' inability to acquire the needed equipment

and facilities to enable them to access these online platforms to participate in these online educational programmes.

Owusu-Fordjour et al. (2020) reported in their study which aimed at assessing the impact of Covid-19 on learning that, Ghanaian students were unable to study effectively from home which made the online education system very ineffective. For children in the junior stages, parents are unable to effectively supervise and assist them, and for the senior levels, parents could not adequately provide the needed equipment including internet.

It is therefore necessary to conduct this study to assess the measures put in place by the University for Development Studies Library to offer services to patrons as well as identify challenges that limited these initiatives.

### **Study Area**

The University for Development Studies (UDS) is one of twelve public universities in Ghana. It was established in May 1992 in accordance with PNDC Law 279. The University is development oriented and has a pro-poor focus which is reflected in its method of teaching, research and outreach services (UDS, 2020). The setup of UDS is different from the other universities in Ghana. The University is multi-campus and is in rural Northern Ghana where there is a high incidence of acute poverty. Its vision is pro-poor, as such, aims at finding solutions to the conditions and structural causes of poverty. Due to its multi-campus nature, UDS has campuses in Tamale, Dungen, and Nyankpala in the Northern Region. The campuses at Navrongo in the Upper East Region and Wa in the Upper West Region have become autonomous universities separate from UDS. Since the emphasis is on development studies, all the courses taught at the University have a trace of development studies, ranging from mathematical sciences, medicine, nutrition, nursing, education, business studies, community development, accounting and so on.

The UDS Library, just like its parent institution, is multi-campus in nature. The library was established in 1993 when UDS began academic work with its first batch of 49 students (UDS, 2017). The library supports teaching, research and learning of the University by providing information and bibliographic support for all faculties, schools, institutes and centers and has branches on all campuses. The main or central library is located at the Nyankpala campus of the university. The central library co-ordinates and complements the

activities, services and operations of the libraries on the other campuses.

## Methodology

A quantitative approach was employed to gather the data for the study. The choice of a quantitative approach was motivated by the ability to generate statistical measures to serve as a benchmark and reveal trends and patterns that may require further qualitative research. Five of the UDS Library's virtual services were of interest to this study and hence formed the basis for data collection and analysis. These were, electronic resources usage, e-mail, chat services, Turnitin and the institutional repository. These five virtual services were selected for the study because they existed prior to the pandemic and therefore, quantitative statistics could be generated for comparisons. The study explored the changes in usage of UDS Library's virtual services in the period before Covid and during the pandemic.

The time periods chosen for this study were arrived at by calculating the number of months between the first discovery of Covid-19 in Ghana in March 2020 (Kenu et al., 2020) and the time this study was carried out in September 2021. This was a total of 19 months and hence, the previous 19 months immediately before this time frame (August 2018 to February 2020) was selected to represent the period preceding Covid-19 in Ghana for the purpose of this study and to enable comparative analysis. Therefore, August 2018 – February 2020 was considered as the period preceding Covid-19 and March 2020 – September 2021, as the period during Covid-19.

Data for this study was sought from statistics of the five virtual library service platforms mentioned earlier (E-resources, Turnitin, Chat services, Emails and the Institutional repository). The specific data extracted had to do with messages received via the library's email, chats recorded from the Chat-a-Librarian service, Turnitin accounts created, and virtual scans requested, full-text downloads from the library's electronic databases, and downloads from the institutional repository.

The data was extracted from the administrator account of these platforms after permission was sought from the platform administrators and transferred into excel spreadsheets and analyzed for frequencies and descriptive statistics. The authors did not collect any personal data of users of these platforms. The results were presented using tables and charts.

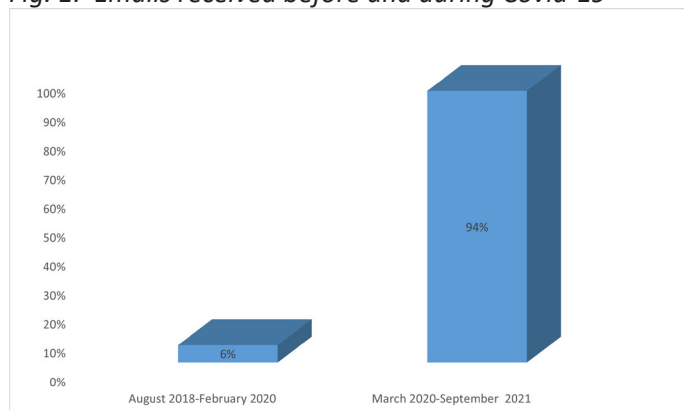
## Findings

The results from the data gathered for this study for each of the five virtual services are presented as follows; Electronic Mails, Instant Messaging Services, Turnitin Anti-Plagiarism Software Accounts, Electronic Journal Databases and Institutional Repository (UDSSpace).

### Electronic Mails

The study recorded the total number of emails received via the library's official email address for the period before Covid-19 (August 2018-February, 2020) and during Covid-19 (March, 2020 – September, 2021). Out of a total of 639 emails received, 38 were recorded prior to Covid whilst 601 was recorded during the pandemic. Figure 1 presents the distribution in percentages of emails received.

Fig. 1: Emails received before and during Covid-19

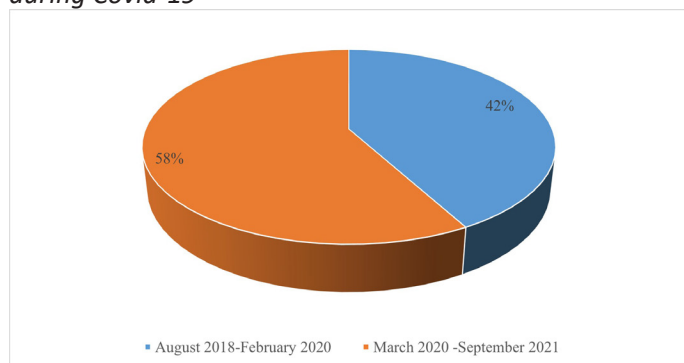


Source: Field data, 2021

### Instant Messaging Services

Instant messaging services, referred to as chat-a-librarian, recorded 174 messages (42%) in the period before Covid and 245 messages (58%) during Covid. This can be seen in Figure 2.

Fig. 2: Instant Messaging (Chat-a-Librarian) before and during Covid-19

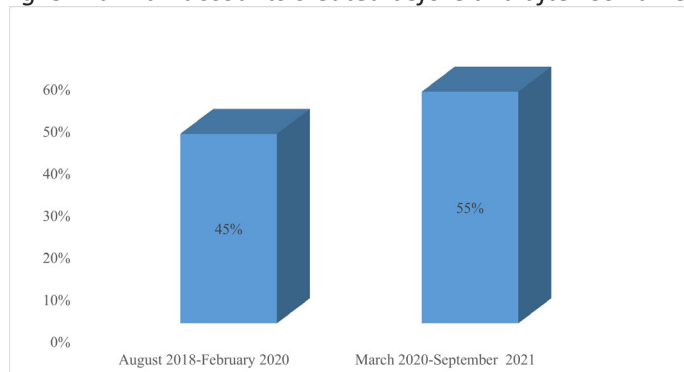


Source: Field data, 2021

### Turnitin Anti-Plagiarism Software Accounts

The data pertaining to Turnitin instructor accounts created (Figure 3) over the periods of interest indicated that 45% (143) were requested and created by staff of UDS prior to the Covid-19 pandemic whilst 55% (174) were created during the pandemic.

Fig. 3: Turnitin accounts created before and after Covid-19



Source: Field data, 2021

### Electronic Journal Databases

The study made use of the publishers' usage data from seven multidisciplinary journal databases UDS library subscribes to. The choice of these seven multidisciplinary databases was to eliminate any biases that may result from subject-specific databases.

Table 1: Full-text downloads of journal articles from multidisciplinary databases before and during Covid

| Database name    | Pre-Covid (PC) | During Covid (DC) | Total (T)     | Difference (%) |
|------------------|----------------|-------------------|---------------|----------------|
| Sage journals    | 3,696          | 6,946             | 10,642        | + 30.54%       |
| Emerald          | 3,948          | 6,077             | 10,025        | + 21.24%       |
| Taylor & Francis | 3,607          | 5,144             | 8,751         | + 17.56%       |
| Jstor            | 13,129         | 17,635            | 30,764        | + 14.65%       |
| IEEE Xplore      | 2              | 1                 | 3             | - 33.33%       |
| Project Muse     | 161            | 89                | 250           | - 28.80%       |
| EBSCOhost        | 742            | 619               | 1,361         | - 9.04%        |
| <b>Total</b>     | <b>25,285</b>  | <b>36,511</b>     | <b>61,796</b> | <b>+18.17%</b> |

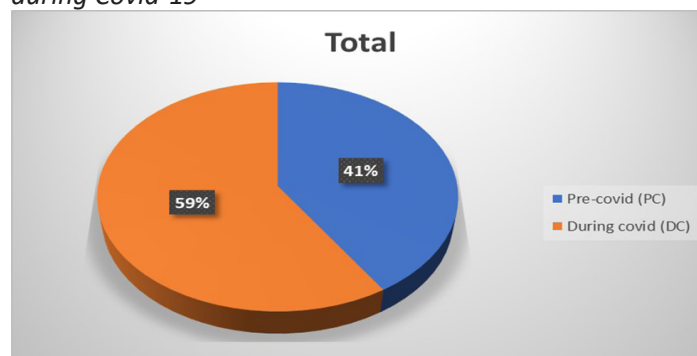
Source: Field data, 2021

The above table shows the total number of full-

text articles downloads from the library's subscribed multidisciplinary databases. The first column presents the figures for the period immediately preceding the Covid-19 pandemic (August 2018 to February, 2020), the second shows the figures during Covid-19 (March, 2020 to September, 2021). From the data, Sage journals recorded the highest percentage increase (30.54%) in full-text downloads of content from the database whilst JSTOR recorded the lowest percentage increase (14.65%). The IEEE database on the other hand, recorded the highest percentage decrease in full-text downloads of 33.33% whilst EBSCOhost recorded the lowest percentage decrease of 9.04%.

Based on the data presented in Table 1, four out of the seven databases recorded percentage increases in usage during Covid-19 whilst the other three recorded decreases in such. Sage journals were heavily used and IEEE Xplore was the least used. The Covid-19 pandemic heavily influenced the use of e-resources since patrons had limited or no access to the library's physical collections and had to rely on electronic ones during the period.

Fig. 4: Percentage of total full-text downloads before and during Covid-19



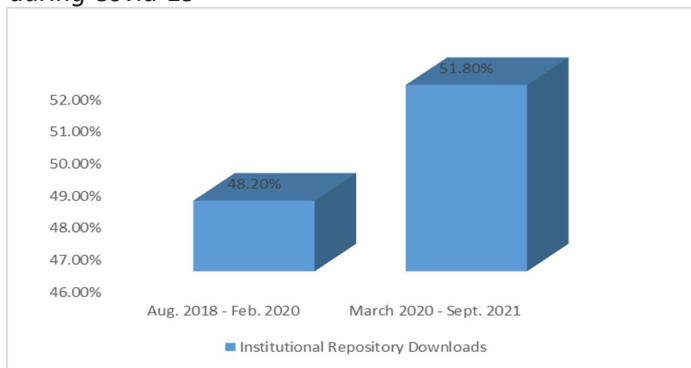
Source: Field data, 2021

Figure 4 shows the percentage of full-text downloads from all databases and the percentages for the period before Covid-19 and during Covid-19. During the period of Covid-19, 59% of the total articles recorded were downloaded whilst 41% were downloaded prior to the pandemic.

### Institutional Repository (UDSSpace)

The total downloads from the UDS Institutional Repository (UDSSpace) from August 2018 to February, 2020 (before Covid-19) was 81,068 (48.2%) downloads whilst that from March, 2020 to September, 2021 (during Covid-19) was 87,272 (52.8%) downloads. The percentage distribution for UDSSpace downloads is presented in Figure 5.

Figure 5: Institutional Repository downloads before and during Covid-19



Source: Field data, 2021

## Discussion of Findings

Librarians can help reduce the impact of the Covid-19 pandemic on their users by ensuring that they have unrestricted access to the information even during the lockdown where these libraries are closed. The UDS Library is achieving this by ensuring access to their information resources through various virtual platforms including their electronic resources, electronic mails, chat-a-librarian, Turnitin anti-plagiarism and their institutional repository platforms. In order for the UDS Library to effectively do this, there needed to be a drastic shift in their operational styles and methods, by intensifying user education to equip them enough to be able to effectively access the resources available. As a result, Webinars were organized by the Information Services Department of the library largely via zoom to draw the attention of users to the available virtual service delivery platforms for their information needs during the lockdown caused by Covid-19. These webinars were also recorded and made available through the social media handles of the library, including YouTube with links made available on their Facebook and Twitter platforms. Analysis indicates that amongst all the virtual platforms introduced in the library, electronic mails were highly used to communicate with users (Figure 1). This finding is consistent with findings from Dadhe and Dubey (2020) who indicated that they made use of emails to reach their patrons.

Even though these virtual service delivery platforms were introduced to increase the scope of access to services years before the pandemic, they were highly patronised by users after the Covid-19 pandemic restricted movement and contact between librarians and patrons. This is evident in Figure 1 as 94% of services delivered through electronic mails were recorded from March 2020 to date (September

2021).

All five service delivery platforms recorded increases in usage during the period after Covid-19 as compared to that of before the pandemic. This is consistent with findings from Fasae et al. (2020), Guo et al. (2020), Pokorná et al. (2020) and Winata et al. (2021) who all indicated improved usage of virtual library services during the Covid-19 lockdowns in Nigerian, Chinese and Indonesian academic libraries respectfully. The electronic journal databases and the institutional repository recorded high increase in downloads, thus, indicating patrons need for access to scholarly and research materials from the library. The results show that the virtual services have ensured that the library has not lost its relevance in the face of the pandemic; a finding that agrees with a finding by Tseka and Chigwada (2021) which revealed the important role libraries played in facilitating electronic teaching and learning in Zimbabwean universities. It was however, observed that there were a few challenges that the library encountered in the delivery of these services. These challenges include poor internet connectivity and erratic power supply which affected the smooth running of these services. This agrees with UKaids (2020) position on the negative impact of challenges in Africa on access to students. These finding also agrees with a finding by Ifijeh and Yusuf (2020) which suggests that lack of technological and insfrustratural facilities affect service delivery. It is therefore imperative that the Library management tries to limit the effects of these challenges by providing alternatives such as increased bandwidth supply to the library as well as ensure that the power planr is always well serviced and fueled to quickly replace any power outages automatically.

## Recommendation

Indeed, libraries adjust to change in their quest to provide users access to resources and services. Evident from this study are efforts made by the UDS Library to intensify the use of virtual platforms to provide services to patrons during the outbreak. However, it was revealed that even though these platforms existed prior to the Covid-19 pandemic, users needed education to effectively use them. Hence, the need for the library to intensify trainings on access to services. This will ensure that at all times and irrespective of their location, users can access services. Also, the library needs to invest in improving upon the poor internet connectivity and erratic power supply to better equip them to serve users uninterrupted.

Study Limitations and recommendations for future research

The study did not compare the usage of the off-campus portal due to the inability to acquire data from the previous off-campus service provider (Ez-proxy) before Covid to compare against the existing platform (RemoteXs). This study did not consider the underlying reasons for the increases or decreases in usage of these virtual platforms and the challenges faced by patrons in accessing these services. The study did not also categorize the usage figures, that is, to determine the different types of queries received through the emails and chat-a-librarian, the usage of Turnitin accounts, the downloads from the e-journal database by subject, among others. These can be the focus of future research studies.

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