# ВЛИЯНИЕ COVID-19 НА ФУНКЦИОНИРОВАНИЕ БИБЛИОТЕК В МОНГОЛИИ

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**Аннотация**

Пандемия Covid-19 оказала сильное влияние на функционирование сферы высшего образования и культуры, включая деятельность библиотек, которым в срочном порядке пришлось перестаивать свою работу, чтобы приспособиться к сложившейся ситуации. Большинство библиотек Монголии закрылось для посетителей. Перед библиотекарями внезапно возникла задача перейти от очного обслуживания читателей к их обслуживанию в режиме онлайн.

Цель этого исследования — изучить, как монгольские библиотеки справляются с удовлетворением потребностей своих посетителей в новых для них условиях, выявить возникшие проблемы, а также сформулировать рекомендации по улучшению их деятельности. В ходе исследования авторы ставили перед собой следующие вопросы: в какой степени пандемия Covid-19 повлияла на повседневную работу библиотек; каковы перспективы библиотечного обслуживания читателей; как библиотекари и посетители библиотек отнеслись к изменениям в их работе.

Original article

# THE EFFECTS OF COVID-19 ON LIBRARIES

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**Abstract**

The Covid-19 pandemic has greatly affected higher education and cultural sector, including libraries. Most of the libraries in Mongolia were physically closed for patrons. Librarians were suddenly tasked moving from in-person service into online and the Covid-19 pandemic affects policies, strategies, activities, behavior itself and the library's future development strategy was not considering the effect of Covid-19. The aim of this paper is to explore how Mongolian libraries satisfy the need of their patrons in unexpected situation, such as Covid-19-induced transition to adapt to keep afloat, to identify the main issues that have arisen and make recommendations for the betterment of libraries' role in such situations. To be more specific, we address the following research questions: To what extend Covid-19 affected library daily activities? Will the library service styles, perspectives, strategies, patrons', and librarian' attitudes change in the future?

To address the research issues a quantitative and qualitative content analysis was used on a dataset created from a questionnaire survey

and interviews from librarians and patrons. The aim was to find out whether libraries can meet patrons' needs and if the staff is fully paid. Besides, the analysis covered such criteria as printed and e-book usage, internal and external online databases, other library services usage during the pandemic period, and positive and negative impact of Covid-19. The results were then compared to the indicators of the pre-Covid-19 period.

### Introduction

The years 2020 and 2021 will be remembered as the years of the coronavirus and around the world, hundreds of thousands of people died from the disease, every organization changed in ways large and small, and libraries were no exception. In Mongolia, all academic institutions and libraries were closed from January 27th, 2020, therefore the educational institutions forced to work online to avoid risk of losing an academic year[1]. Most of the libraries in Mongolia were physically closed for patrons but the libraries required to meet the needs of their readers, such as working with patrons remotely, introducing electronic systems, learning to work with techniques and technologies, digitizing printed books, and obtaining copyrights and patents and etc. This pandemic, on the other hand, has given a powerful impetus to the rapid transformation of traditional libraries to meet the needs of modern readers [1, p. 298]. In many parts of the world, libraries have faced a variety of challenges, exploring opportunities to meet the information needs of their patrons remotely, and opening new library services[2]. Due to the Covid-19 pandemic, physical services to libraries around the world have been disrupted, making it a sudden obstacle for patrons to access library resources in a timely manner. In Mongolia, there is an urgent need to identify and analyze the challenges that library readers face in meeting and accessing information during the Covid-19 period, and to make recommendations on how to improve library services to adapt to the current and future circumstances.

The modern libraries established in Mongolia in 1921 have been divided into public, research, and special libraries. Public libraries enrich their collections with all kinds of scientific books and provide services to a variety of professionals of all possible ages and try to meet their needs and requests. Research libraries are for people doing research and include research institutes, universities, and colleges. Research libraries are aimed at specific readers and build their materials to suit the needs of their patrons. Special libraries generally include secondary school libraries and institutional libraries. Covid-19 has exacerbated the problem of Mongolian libraries and accelerated their digital transformation. Librarians are being asked to digitize printed materials to increase the number of e-books, to start online library trainings, hold conferences, initiate community activities, prepare and post contents, and issue brochures for e-learning students in Mongolia.

### Literature Review

Few opinion papers comparing how the libraries worked to meet their patrons' needs during Covid-19 have been published, but there are no empirical studies on the phenomenon. Library associations have also responded to the pandemic with research and best practices [2]. The International Federation of Library Association has been compiling and updating its website regarding the situation of libraries around the world since the outspread of Covid-19 [Ibid.]. The American Library Association has created a webpage to compile the information about possible implications of Covid-19 pandemic [Ibid.]. A comparative study of library services of three universities reveals that the Covid-19 pandemic had a significant impact on American higher education, including libraries [3, p. 1]. Almost all libraries were closed and restricted from accessing the buildings, therefore the use of digital content, e-learning, and virtual software has increased in the USA [4]. American libraries have worked to address social crises and planned how to meet the learning needs of patrons and increase digital resources [Ibid.]. The quarantine of Covid-19 has led to an increase of the number of digital libraries, and secure library infrastructure in India [5]. According to the study in West Bengal, India, «During the quarantine period, students used smartphones for e-learning, and they faced a variety of problems, including depression, slow internet speed, a poor home learning environment, and the students in remote areas had the most difficulties to learn» [6]. During the pandemic, Pakistani library staff

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[1] The Mongolian Special Commission News, 2020 // Unified statistical database. URL: https://www.1212.mn/stat.aspx?LIST_ID=976_L04&year=2020&q=4.

[2] Key Resources for Libraries in responding to the Coronavirus Pandemic // IFLA. 2020. URL: https://www.ifla.org/covid-19-and-libraries#understanding.

worked from home and there was a sense of overwork because of 24/7 connectivity and a lack of any formal working policy addressing the new working conditions [2]. University librarians felt a lack of digital literacy skills, and slow internet speed were the major barriers in their transition from the physical mode to an online one, and libraries need to focus on improving their digital services in Pakistan [Ibid.]. Although libraries began the transition to e-library before Covid-19, they preferred to provide traditional services, and the transition to digital services was rather slow, but the pandemic required with making electronic advances and opened new possibilities [7]. Students' reading habits are changing, and many people are seeking to access information using digital technology, which forces libraries to adapt to these changes [8]. Libraries in the United States and other developed countries have less difficulty accessing e-services during the pandemic than those in less developed countries, and they are working to introduce cloud technology-based services to make the library services easier [3, p. 9—10]. The study about the impact of the Covid-19 pandemic on Chinese students, their access to information was conducted in 2021, and according to the research result they found that the patrons lacked understanding of digital libraries and desired library support for them [9]. Before the pandemic, the transition to e-libraries in most Asian countries was slow, but the studies on «Library Services in the Digital Age» was conducted in 2012 and on «Adolescent Library Service Habits and Future Trends» — in 2013 [10]. 80 % of the respondents preferred library home delivery service and 77 % of the respondents answered that they need the internet service access on library computers [Ibid.].

## Method

### Design

The aim of this paper is to explore how Mongolian libraries satisfy the need of their patrons in unexpected situation, such as Covid-19-induced transition to adapt to keep afloat, to identify the main issues that have arisen and make recommendations for the betterment of libraries' role in such situations. To be more specific, we address the following research questions:

— To what extend the Covid-19 affected the library daily activities?

— Will the library service styles, perspectives, strategies, patrons', and librarian' attitudes change in the future?

To address the research issues, a qualitative content analysis approach was used on a data-

set with questions with optional answers and open-ended questions created from librarians and patrons in order to identify the main influences of Covid-19 on future concepts and daily activities of Mongolian libraries. A qualitative content analysis was used on a dataset and created with interviews from librarians and patrons. The interviews were conducted by different interviewers in their office or library; we agreed on preliminary guidelines that the interviewers should follow. First, the interview questions should be the same as in the questionnaire sample and the sequence of the questions should not be changed. Second, the interviewer could support the interviewee with further explanations about a question if something was not clear to the participant. Third, the interview questions should not be shared with the participant before the interview, since this could influence the actual interview situation. We required that the interview invitation letter was sent to all participants beforehand to schedule in their free time.

### Data Collection Tools

The data collection method involved conducting personal, semi-structured interviews and optional and open-ended questions with librarians and patrons from various backgrounds. For the analysis, the questionnaire survey and interview were divided into main three groups: University, Secondary school and Public libraries. The criteria for University library group included main representatives of the State Universities and representatives of big and small sized private university libraries. The main purpose of dividing into three categories was to provide a basis for comparison in differences to the responses of each category. We included 47 libraries, from them 16 — University libraries, 16 — Secondary school libraries and 15 — Public libraries. For all our participants, we employed the following criteria: they should be working in Mongolian libraries or having one of active patrons of its. We developed two different questionnaire surveys with optional answers and open-ended questions for librarians and readers and each type included itself 15 questions. Our final first type of questionnaire survey sample included 1 102 readers, 177 of the participants were researchers and teachers, 42 graduate, 613 undergraduate and 213 secondary school students and 57 readers were not circled where they belong. In the control group we interviewed 12 active patrons with same content of questions within three groups libraries. The second type of questionnaire survey sample included 47 librarians from each participated libraries and made control interview with

15 librarians within main three groups libraries including same content of questions. Since our goal was to ensure a comfortable atmosphere and let participants freely express themselves, we arranged the interviews in participants' office. SPSS software was used to integrate the survey. Comparing the issuance of printed books during normal and pandemic period was mathematically tested to determine whether they were affected by Covid-19 using the Chi-square test.

*Research Process*

Both interview questionnaire from librarians and patrons were same as survey questionnaire and divided into two parts. The purpose of the first part of both survey questionnaire and interview was to collect patrons' and libraries' statistical information during Covid-19. The second part of our analysis from the patrons was the effect of Covid-19 in patrons' study process and knowledge. We assessed the problems raised during Covid-19, the implemented new things its period and future desired service after pandemic from the librarians. To achieve the objectives of the study, the survey was conducted using the questions in Tables 1 and 2.

*Analysis of Data*

We analyzed by comparing the related questions and the survey was conducted from 1 102 people, but some of the questions were not filled. The doubtful answers or not filled questionnaires were clarified during the interview with the librarians or patrons, and the results obtained from the interviews used for the final analysis.

**Findings**

According to the survey result 62 % of those surveyed answered that they did not receive library services during the Covid-19, and public patrons answered with highest rate with 71 % on this question. We compared the frequency of library use prior to the Covid-19 with the needs which raised during the pandemic. The results of the survey showed that the total number of the patrons who wanted to receive a library service during the Covid-19 were more than the number of services during ordinary period without pandemic. 50,5 % of the respondents answered that they used the library a lot prior to the pandemic but 57,7 % of them answered that they wanted to use the library during the Covid-19 more than normal period. The patrons had more willing to use library services and

Table 1

**Summarizes the questionnaire survey and interview structure from patrons**

| Category | Questions |
|---|---|
| 1. Personal information of using library | What is your level of study? Which library do you go mostly? Which service do you take mostly? How about your frequency of library use before Covid-19? Did you use the digital library before the pandemic period? |
| 2. Effect of Covid-19 on study process | Could you take your desired service during Covid-19, if not why? How often do you use the digital library during the pandemic period, if don't why? How often did you have the necessity of taking the library service the during pandemic period? Did the libraries' electronic databases provide your desired necessities during the Covid-19? How the Covid-19 effect on your taking knowledge and skill process? Could you take your required information during the Covid-19? Did the limited library service effect on your taking knowledge process badly or vice versa during the pandemic period? Did librarian support you during the Covid-19? If the pandemic gets to continue, what kind of service do you want to take mostly? |

Table 2

**Summarizes the questionnaire survey and interview structure from librarians**

| Category | Questions |
|---|---|
| 1. Libraries' statistical information | Which library do you work? How many printed and online materials were in circulation for patrons during the Covid-19? How did your library work during the Covid-19? |
| 2. Effect of Covid-19 on library activity | How the Covid-19 influenced to your library's normal activity? What kind of difficulties have you had to work online suddenly due to the Covid-19? Did your library have an electronic database and give a service to patrons from them? Did your service indicators with electronic databases increase during the Covid-19? If the pandemic gets worse how the library should improve their service? Did the Covid-19 have any positive impact on your library activities? Please write what kind innovated service did your library implement during the Covid-19? What kind of serious problems does your library have due to the pandemic situation? How does your library should improve its service? |

Table 3

**Analysis of the questionnaire survey and interview from patrons**

| Question | University libraries' patrons | | Public libraries' patrons | | Secondary school libraries' patrons | | Not known | | Total Number (#) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 |
| *(A1)*: Could you take your desired library service during the Covid-19? | | | | | | | | | | |
| *Yes* | 102 | – | 139 | – | 74 | – | 6 | – | 321 | – |
| *No* | 217 | – | 340 | – | 122 | – | 47 | – | 726 | – |
| *(A1)*: How often do you use the digital library during the pandemic period? *(A2)*: How often did you have the necessity of taking the library service during the pandemic period? | | | | | | | | | | |
| *Very much* | 117 | 179 | 38 | 91 | 16 | 17 | 2 | 6 | 173 | 293 |
| *Some* | 216 | 162 | 116 | 111 | 44 | 58 | 8 | 12 | 384 | 343 |
| *Not a lot* | 119 | 139 | 134 | 118 | 105 | 122 | 27 | 35 | 385 | 414 |
| *Few* | 28 | 0 | 34 | 0 | 32 | 0 | 17 | 1 | 111 | 1 |
| *(A1)*: Did the libraries' electronic databases provide your desired necessities during the Covid-19? *(A2)*: Did the limited library service effect on your taking knowledge process badly? | | | | | | | | | | |
| *Yes* | 58 | 271 | – | 167 | – | 79 | – | 17 | 58 | 534 |
| *In some ways* | 288 | 95 | – | 58 | – | 47 | – | 17 | 288 | 217 |
| *No* | 100 | 100 | – | 87 | – | 64 | – | 17 | 100 | 268 |
| *(A1)*: How did the Covid-19 effect on your taking knowledge and skill process? *(A2)*: Could you take your required information during the Covid-19? | | | | | | | | | | |
| *Improved technological knowledge* / *Enough* | 101 | 57 | 81 | 42 | 35 | 20 | 7 | 6 | 224 | 125 |
| *Increased ability to search and use information online* / *In some ways* | 208 | 353 | 98 | 222 | 78 | 141 | 23 | 40 | 407 | 756 |
| *The opportunity to visit and gain knowledge and information in person was limited* / *No* | 124 | 57 | 97 | 47 | 51 | 30 | 15 | 6 | 287 | 140 |
| *Not affected* | 31 | – | 34 | – | 20 | – | 6 | – | 91 | – |
| *(A1)*: Did librarian support you during the Covid-19? | | | | | | | | | | |
| *Provided inquiries and information on the required topic* | 117 | – | 102 | – | 54 | – | 8 | – | 281 | – |
| *Provided information about the new book* | 33 | – | 45 | – | 44 | – | 7 | – | 129 | – |
| *Provided advice on how to read the e-books* | 142 | – | 68 | – | 46 | – | 11 | – | 267 | – |
| *Other* | 115 | – | 71 | – | 40 | – | 15 | – | 241 | – |
| *(A1)*: If the pandemic gets to continue what kind of service do you want to take mostly? | | | | | | | | | | |
| *Internal electronic and external online databases service* | 223 | – | 111 | – | 66 | – | 14 | – | 414 | – |
| *Inquiry and information service* | 38 | – | 21 | – | 24 | – | 6 | – | 89 | – |
| *Book delivery service* | 148 | – | 129 | – | 68 | – | 13 | – | 358 | – |
| *Advice for E-learning* | 44 | – | 39 | – | 25 | – | 10 | – | 118 | – |
| *Home delivery service* | 5 | – | 6 | – | 5 | – | 2 | – | 18 | – |

develop themselves during the pandemic, but the most Mongolian libraries closed and did not give any services to the patrons, and the home delivery service stopped as well in many libraries. We compared the results of two questions which are whether the library's internal electronic and external online database services met the needs of patrons to the question of «Did the limited library services affect their ability to de-velop themselves during the Covid-19?» When asked whether the library's internal electronic and external online database services fully met the needs of customers during the pandemic, the university patrons responded that 22,4 % of them did not meet their needs at all and 64,5 % of them partially satisfied. The answers of the public, secondary school libraries patrons to the question of whether the electronic and external

online database services met their needs were doubtful, so we tried to confirm during the interview study those questionable things and revealed that these libraries do not currently serve readers with internal electronic and external databases. According to the survey result the National Library has some internal databases with rare materials which were excluded from the analysis because we found that they did not provide any services to patrons with those databases. The secondary school libraries responded that they do not have any internal electronic and external databases. 48,4 % of the surveyed patrons said that the limited library services during the Covid-19 had a negative impact on their self-development opportunities and for the university patrons had it with highest rate as 58,1 %. The ability to search and use information in the online environment has increased for 36,9 %, the knowledge of technology for 20,3 %, but 26 % of the respondents answered that they had limited access to knowledge and information in person. 68,6 % of the surveyed patrons said that they could not get some information while 12,7 % of the respondents could not get any information at all during the pandemic. The survey concludes that the Covid-19 situation has had a positive effect on increasing patrons' technical knowledge and ability to work online, but the service of libraries had not fully met the information needs of their most users as 81,3 %. When asked what kind of support the librarian provided during the pandemic, 25,4 % of respondents said that they received inquiries on the topic, 11,7 % information about new books, and 24,2 % advice on reading e-books. 37,5 % of the respondents wanted the use the internal electronic and external online databases if the Covid-19 continues, which was the highest number for university patrons as 48,6 %. 32,4 % of the respondents wanted the book delivery service, which was the most desired service of the public library patrons as 42,1 %.

A total of 47 libraries in three groups were surveyed, including 16 universities, 15 public and 16 secondary school libraries, each group's questions with the same content. 90 % of surveyed librarians said that the planned library activities had decreased and 68 % of them responded that service performance decreased as

<div align="right">Table 4</div>

**Analysis of the questionnaire survey and interview from librarians**

| Question | University libraries' patrons | | Public libraries' patrons | | Secondary school libraries' patrons | | Total Number (#) | |
|---|---|---|---|---|---|---|---|---|
| | Yes | No | Yes | No | Yes | No | Yes | No |
| *A1. What kind of negative impacts had on your library activities due to the Covid-19?* | | | | | | | | |
| The planned work of the library interrupted | 13 | 1 | 14 | 3 | 15 | 1 | 42 | 5 |
| The number of the book collection decreased | 9 | 5 | 5 | 12 | 4 | 12 | 18 | 29 |
| The library staff salaries decreased | 4 | 10 | 0 | 17 | 1 | 15 | 5 | 42 |
| The library service performance decreased | 10 | 4 | 14 | 3 | 8 | 8 | 32 | 15 |
| *A2. Did the Covid-19 have any positive impact on your library activities?* | | | | | | | | |
| Increased the electronic databases | 10 | 4 | 6 | 11 | 3 | 13 | 19 | 28 |
| Improved the technique and technology | 4 | 10 | 1 | 16 | 4 | 12 | 9 | 38 |
| Improved the opportunity working in online environment | 10 | 4 | 15 | 2 | 12 | 4 | 37 | 10 |
| The management started to support the library activities more | 3 | 11 | 0 | 17 | 3 | 13 | 6 | 41 |
| *A3. What kind of difficulties have you had to work online suddenly due to the Covid-19?* | | | | | | | | |
| Lack of techniques | 10 | 4 | 16 | 1 | 10 | 6 | 36 | 11 |
| Problems with internet | 4 | 10 | 9 | 8 | 8 | 8 | 21 | 26 |
| Lack of knowledge working in online environment | 3 | 11 | 6 | 11 | 3 | 13 | 12 | 35 |
| Lack of knowledge working in computer | 3 | 11 | 1 | 16 | 0 | 16 | 4 | 43 |
| *A4. If the pandemic gets worse how the library should improve their service?* | | | | | | | | |
| Arise the internal database | 5 | – | 7 | – | 11 | – | 23 | – |
| Increase the internal online databases | 11 | – | 14 | – | 6 | – | 21 | – |
| Increase the external online databases | 8 | – | 6 | – | 5 | – | 19 | – |
| Start co-ownership of the electronic databases between libraries | 6 | – | 8 | – | 7 | – | 21 | – |

well during the Covid-19. Public library salaries were not reduced, but 28 % of university and 6,2 % of secondary school librarians said that their salaries were reduced. In a study of the positive effects of the pandemic on the library, 67,8 % of the respondents said that e-resources had increased and 78,7 % answered that their ability to work in an online environment had improved. 19 % of the librarians answered that the technology had improved, while only 12,7 % said that the management support had increased in the library. It is noteworthy that no one gave positive answer from the public library to the question of management support, and only one person answered that the technology had improved. When we asked what problems, librarians faced when working online, 76,5 % of surveyed said that they lacked the equipment, 44,6 % had problems with the Internet, 25,5 % lacked the skills to work online and 8,5 % said that they had some poor computer skills. Librar ies defined their needs differently depending on the needs of their patrons. Librarians from sec ondary school responded that there is a great need for internal e-databases, while public and university libraries needed to increase their in ternal e-databases. For the purpose of monitor ing, the main major libraries were selected, and 15 librarians totally were interviewed, of them 11 from university, 3 from public and 1 from secondary school libraries. Due to uncertain responses to the use of online libraries, printed books and internal and external electronic da tabases, we clarified from interviewed librarians during the interview survey. To create a com fortable atmosphere and allow participants to express themselves freely, the interviews were conducted in the library where the participants are located.

The results of our surveys and interviews showed that Covid-19 has influenced the normal functioning of all organizations around the world, including the libraries. In our study, we used the Chi-square test method to double-check our result of Covid-19. The number used in the test are shown in yellow.

We found that the pandemic affected the National, Ulaanbaatar City and Central Children's Library through comparing the printed books us age during Covid-19 to the pre-Covid-19 period using Chi-square test method. According to our study «the chi-square value = 5,132», «the crit ical value of the chi-square = 5,99 / $\alpha$ = 0,05, degree of freedom = 2 /» (Table 5). We also found that the pandemic affected the Libraries of the National University of Mongolia, Mongolian University of Science and Technology, Mongo lian State University of Education and University of Finance and Economics through comparing the printed books usage during Covid-19 to the pre-Covid-19 period using Chi-square test method. According to our study «the chi- square value = 28,039», «the critical value of the chi-square = 7,81 / $\alpha$ = 0,05, degree of freedom = 3 /» (Table 5).

We compared two periods usage of printed materials such as Covid-19 beginning indicator to the exact same period after a one year of time. In the beginning of Covid-19 the usage of printed books decreased in all libraries from 64,1 till 97,35 % but the situation is improved in a year later of time. This phenomenon is ex-

Table 5

**A comparative study of printed books usage during Covid-19 and pre-Covid-19 period**

| Library category | Normal period 01.02.2019– 31.05.2019 | Covid-19 period 01.02.2020– 31.05.2020 | % | Covid-19 period 01.02.2020– 31.05.2020 | Covid-19 period 01.02.2021– 31.05.2021 | % |
|---|---|---|---|---|---|---|
| National Library | 51 315 | 8 869 | 82,7 ⬇ | 8 869 | 3 427 | 61,4 ⬇ |
| Ulaanbaatar city public library | 126 129 | 16 709 | 86,8 ⬇ | 16 709 | 9 488 | 43,2 ⬇ |
| Central Children's Library | 27 508 | 9 895 | 64,1 ⬇ | 9 895 | – | – |
| *Chi-square* | | | | | | *5,132* |
| *Critical Value of Chi-square* (=CHISQ.INV.RT(0,05, 2)) | | | | | | *5,99* |
| Library of the National University of Mongolia | 477 695 | 44 098 | 90,8 ⬇ | 44 098 | 48 100 | 8,3 ⬆ |
| Library of Mongolian University of Science and Technology | 90 487 | 2 515 | 97,3 ⬇ | 2 515 | 889 | 64,6 ⬇ |
| Library of Mongolian State University of Education | 333 552 | 19 213 | 94,2 ⬇ | 19 213 | 4 895 | 74,5 ⬇ |
| Library of University of Finance and Economics | 37 134 | 1 309 | 96,5 ⬇ | 1 309 | 1 154 | 11,8 ⬇ |
| *Chi-square* | | | | | | *28,039* |
| *Critical Value of Chi-square* (=CHISQ.INV.RT(0,05, 3)) | | | | | | *7,81* |

plained by the fact that the libraries have found ways to improve the services over time during the pandemic. The library of the National University of Mongolia was the only one with growth result in 2021 and it was explained that during pandemic period the library gave some service such as home delivery and one reading hall was open. In the table 5, there is no indicator in 2021 in Central Children's Library and it explained that they closed the door and did not give any service during this survey period.

We found that the pandemic affected the main representatives of university libraries through comparing usage of the internal and external online databases during Covid-19 to the pre-Covid-19 period using Chi-square test method. According to our study for internal online database «the chi-square value = 12,036», for external online database «the chi-square value = 26,947»; Critical Value of «chi-square for both databases = 5,99 / $\alpha$ = 0,05, degree of freedom = 2 /» (Table 6, 7).

During the pandemic time, it was assumed that staying at home would result increase the external and internal online database services, but the decline in most libraries was a major concern, we clarified the reason in our interview survey. In the case of the Library of the National University of Mongolia, the internal e-database has declined slightly since the beginning of the Covid-19 due to the fact that people often approached material from school library and

Table 6

**A comparative study of internal online databases usage during Covid-19 and pre-Covid-19 period**

| Library category | Normal period 01.02.2019–31.05.2019 | Covid-19 period 01.02.2020–31.05.2020 | % | Covid-19 period 01.02.2020–31.05.2020 | Covid-19 period 01.02.2021–31.05.2021 | % |
|---|---|---|---|---|---|---|
| National Library | – | – | – | – | – | – |
| Ulaanbaatar city public library | – | – | – | – | – | – |
| Central Children's Library | – | – | – | – | – | – |
| Library of the National University of Mongolia | 326 411 | 320 485 | 1,8 ⬇ | 320 485 | 680 352 | 52,8 ⬆ |
| Library of Mongolian University of Science and Technology | – | – | – | – | – | – |
| Library of Mongolian State University of Education | 8 216 | 12 405 | 33,7 ⬆ | 12 405 | 32 285 | 61,5 ⬆ |
| Library of University of Finance and Economics | 8 024 | 29 920 | 73,1 ⬆ | 29 920 | 52 476 | 42,9 ⬆ |
| Chi-square | | | | | | 12,036 |
| Critical Value of Chi-square (=CHISQ.INV.RT(0,05, 2)) | | | | | | 5,99 |

Table 7

**A comparative study of external online databases usage during Covid-19 and pre-Covid-19 period**

| Library category | Normal period 01.02.2019–31.05.2019 | Covid-19 period 01.02.2020–31.05.2020 | % | Covid-19 period 01.02.2020–31.05.2020 | Covid-19 period 01.02.2021–31.05.2021 | % |
|---|---|---|---|---|---|---|
| National Library | – | – | – | – | – | – |
| Ulaanbaatar city public library | – | – | – | – | – | – |
| Central Children's Library | – | – | – | – | – | – |
| Library of the National University of Mongolia | 13 509 | 26 388 | 48,8 ⬆ | 26 388 | 39 494 | 33,1 ⬆ |
| Library of Mongolian University of Science and Technology | – | – | – | – | – | – |
| Library of Mongolian State University of Education | 15 350 | 7 556 | 50,7 ⬇ | 7 556 | 6 710 | 11,1 ⬇ |
| Library of University of Finance and Economics | 1 012 436 | 698 044 | 31,1 ⬇ | 698 044 | 663 464 | 4,9 ⬇ |
| Chi-square | | | | | | 26,947 |
| Critical Value of Chi-square(=CHISQ.INV.RT(0,05, 2)) | | | | | | 5,99 |

did not know how to access it from home. As soon as the library was closed, the library of Mongolian State University of Education and the Institute of Finance and Economics focused on improving their internal electronic databases, and providing access from home, which influenced in the growth of their library's access. The library of National University of Mongolia had a higher number access of external online databases than other representative universities due to providing possibility of access from home. The library of the Mongolian University of Science and Technology refused to provide information on electronic databases as a matter of school privacy that's why we did not include to our analysis. According to the study, the usage of printed books fell sharply in the first year of the Covid-19. The high number access rate of patrons to the library's internal electronic database indicates the needs of libraries to digitalize their holdings. Prior to Covid-19, the use of external databases at most surveyed universities were high, but the indicators declined since the pandemic started. This was related to the fact that the access to the universities' external databases were limited by external IP addresses, and patrons were generally less likely to use external databases as well.

### Results, Discussion and Recommendations

While comparing activity of the public, university, and secondary school libraries the history path was generally similar, but the results were different depending on the nature of the activity and the technological development. At the beginning of the pandemic, all libraries were closed according to the decision of the state emergency commission. But the students of all levels started to study online, and it was almost

new thing in Mongolia. The libraries were faced with the problem of how to provide with necessary materials for those who wanted to use for their online study. We found that the libraries operated differently during Covid-19, some libraries had been doing their internal work for almost two years without serving patrons even with online materials, while others have provided services such as home delivery, partly reading room open service for patrons and service with electronic databases. The results of the survey are summarized in the Table 8.

Although the issue of digitalization in Mongolian libraries has been discussed for some years and started in various ways but the librarians are still with lack of knowledge about the digital world. Covid-19 strongly warned libraries to speed up their digitalization as a matter of urgency, and the study found that despite the end of the pandemic, there is no longer possibility of providing adequate satisfied services by simply delivering printed materials to patrons. The research results show that the libraries need to be a tool that plays a key role in distance learning. Research has shown that Mongolian libraries had been unable to meet the needs of their patrons by closing their doors in the event of an emergency like Covid-19, and librarians had been very busy starting many activities during the pandemic, but patrons had not been able to know their activities. The main library users responded that they did not receive any library services during the pandemic, and it indicates that the most Mongolian libraries were not ready at all in the case of an emergency. The results of the survey show that the public, university, and secondary school libraries differ in the nature of their activities and they have different kind of task urgency. In the Table 9

Table 8

**A comparison of key changes in the surveyed libraries during the Covid-19**

| Library changes | Changed things | Public Libraries | University Libraries | Secondary school libraries |
|---|---|---|---|---|
| | | *If yes (+), if no (−)* | | |
| Positive change | Electronic databases added | + | + | + |
| | Technique and technology have improved | + | − | + |
| | Increased opportunities to work online | + | + | + |
| | Management started to support more library activities | − | + | + |
| | Librarians are more interested in self-improvement | + | + | + |
| | The digitalization of libraries has intensified | + | + | − |
| Negative change | The planned work of the library was interrupted | + | + | + |
| | The book purchase has decreased | + | + | − |
| | The salaries of library staff have decreased | − | + | − |
| | Service performance decreased | + | + | + |
| | Limited services have negatively affected on patrons' learning | + | + | − |

Table 9

**The three most important tasks by prioritization that need
to be implemented systematically in the libraries**

| Library category | The three most important tasks by prioritization |
|---|---|
| Public Libraries | 1. Create an internal electronic database, deliver to patrons, and increase them basing on their needs.<br>2. Improve technology and internet speed.<br>3. Provide patrons the opportunity to work online |
| University Libraries | 1. Increase the access to external online databases without location restrictions.<br>2. Increase the number of the internal electronic databases.<br>3. Open opportunities for universities to share electronic materials with each other |
| Secondary school libraries | 1. Improve technique, technology and internet speed.<br>2. Develop an integrated plan and improve the overall understanding of what is the internal electronic databases and how to have it.<br>3. Systematize activities that support the learning process of the student |

we showed the first three tasks by priority that should be done not depending on whether the Covid-19 continue or not.

### Conclusion

The issue of digitalization in Mongolian libraries has been discussed for some years but still their main service has been traditional physical services. The study found that university libraries were more prepared to deal with sudden technological and organizational challenges than public libraries, and that the university libraries did not completely stop library services while being closed for visitors. University libraries provided electronic and book delivery services. Although university libraries provided online services, the survey found that the patrons were unable to access the materials they wanted due to the lack of materials, which, in their opinion, influenced their learning and development. Libraries have a common problem of access to the Internet, but this problem is more serious for public and secondary schools' libraries than for university libraries. The librarians' lack of skills also caused difficulties for students' distance learning. Although libraries are beginning to realize the need to intensify their digital development,

there are still many factors, such as copyright, financing, technologies and software, which slow down the process. The pandemic has accelerated the digitalization of electronic content, courses, exhibitions and other digital events, and libraries have begun to focus on improving internet speed, techniques and technological communication skills, in addition to building up their online content.

To sum up, the research has shown that Mongolian libraries do not meet the needs of their patrons, have poor internet connection, do not have enough electronic materials, their infrastructure is not developed enough, and librarians have poor skills of dealing with the new techniques and technologies. The majority of the respondents wanted to receive library services more often and the demand for library services was higher during the quarantine period, than before, but Mongolian libraries' reading room services were stopped in almost all libraries and the home delivery service was discontinued in most libraries, leaving patrons unable to receive the services they needed. Therefore, regardless of whether the Covid-19 continues or not, libraries need to systematically improve their internal and external online databases, as well as home book delivery services.

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