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# Technical practices used by information literacy and media information literacy services to enable academic libraries to handle the COVID-19 pandemic

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## Abstract

This study analyses the techniques and procedures that were developed and the changes that took place in the National Autonomous University of Mexico (UNAM) and the Autonomous University of Puebla (BUAP), both in Mexico, and the University of Minnesota Duluth (UMD), in the United States of America. To face the crisis of the COVID-19 pandemic, librarians in these institutions improved their Information Literacy (IL) and Media Information Literacy (MIL) programmes.

## Design / methodology / approach

This study has a mixed methodology with a comparative analysis. For this purpose, data shows the universities' contexts: the communities of students, teachers, researchers, and librarians, and the e-learning strategies of IL and MIL programmes.

## Findings

As part of the results of the crowdsourcing collaboration between the UMD, UNAM and BUAP, the study shows the different online learning communities and their innovations.

## Originality

Although there is theoretical knowledge about IL and MIL in Mexican universities and University of Minnesota Duluth, the e-learning strategies used by their librarians in this document sought to provide technical solutions and other options for a virtual work scheme that responded to the specific problems presented by COVID-19. In this case, the framework for creating online library services was designed by their librarians for their communities in the context of the current crisis, even when online services had already been established for more than ten years.

## Research limitations / implications

The technological infrastructure, the professionalisation of the library staff and a lack of knowledge of the new virtual teaching-learning needs.

## Practical implications

Analysis of tools for virtual teaching-learning services, description of strategies used by library staff, results and feedback.

## Social implications

IL and MIL strategies created in a variety of contexts can be enhanced by library collaboration in a fully virtual setting. Libraries with better technological infrastructure play a decisive role.

## Keywords

academic libraries; COVID-19; information literacy; media information literacy; Mexico; US

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## Introduction

The COVID-19 pandemic crisis forced libraries to close spaces and provide only e-resources and other library services without an established plan for exclusively online operations. Even when the online services existed previously, the increased consumption of web content and the demand for innovations in communication processes have changed the way librarians will plan their traditional services in the near future (Coghill & Sewell, 2020).

In recent years, most universities in Mexico have applied Information Literacy (IL) and Media Information Literacy (MIL) to support online programmes. According to the Association of College and Research Libraries, IL 'is the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning' (ACRL, 2015).

On the other hand, MIL has become essential because it offers 'a basis for enhancing access to information and knowledge, freedom of expression, and quality education. It describes knowledge, skills, and attitudes that are needed to value the functions of media and other information providers, including those on the Internet, in societies and to find, evaluate and produce information and media content' (Grizzle et al., 2013, p. 197).

In fact, the study 'Radiografía sobre la difusión de *fake news* en México' ('X-ray of the spread of fake news in Mexico') conducted by the Autonomous National University of Mexico (UNAM) found that Mexico is the second-largest producer of fake news after Turkey (Hurtado Razo, 2020). In this context, the role of librarians as Information Literacy (IL) and Media Information Literacy (MIL) instructors has been highlighted.

Although IL and MIL are necessary for academia, this topic has represented a challenge in relation to funding, training, hiring and retirements due to COVID-19. In this context, the creation of partnerships between various institutions has begun to yield productive projects and an example of this is the MIL Mexico network.

This international organisation is integrated by UNESCO, DW Akademie, the National Electoral Institute (INE), the Mexican Institute of Radio (IMER), the Autonomous University of Nuevo León (UANL), the Veracruzana University (UV), Social TIC and Tomato Valley, Mentoralia and Technovation Girls (UNESCO, 2021).

This network is focused on MIL, but one of the aspects that stands out among its objectives, along with a focus on improving IL in Mexican universities, is the intention to address the lack of

techniques and good practices in e-teaching Mexican programmes. In fact, this is one of the main factors that motivated the demand for IL and MIL in universities during the COVID-19 pandemic (De Paor & Heravi, 2020).

In the 2020, UMD, BUAP and UNAM started a 'crowdsourcing' project to explore the strategies used by their librarians to implement and guide IL and MIL. At first this study explored only IL skills, but Mexican libraries had already established an important set of diverse activities taking place exclusively within social networks, so MIL become part of the plan to support e-learning and e-teaching with these communities. It is important to point out that this collaboration was possible due to an invitation from the Kathryn A. Martin Library (KAML) at the University of Minnesota Duluth.

IL instruction at the KAML is provided across all subjects and all levels of undergraduate and graduate education, with a high degree of attention given to 'College Writing', a required writing course for undergraduate students.

This teaching and learning process has a high level of specialisation because the course seeks to develop competencies in research and academic writing. The design of the course allows faculty members to organise their agenda and use library-provided modules that focus on evaluating an article, drafting a research plan, and reviewing academic drafts, which are offered as an instruction service through liaison librarian staff.

## **Academic crowdsourcing as part of the development of IL and MIL in Mexico**

IL has been the focus of projects developed between higher education institutions in Mexico and other universities in the United States for more than thirty years. This partnership is more evident among the border states and as an example of this collaboration, the Autonomous University of Ciudad Juarez in Chihuahua was the first to publish the norms for IL in the country (Cortés & Lau, 2002).

Projects developed in IL prior to the pandemic raised questions about online teaching models, which became more evident when the COVID-19 crisis began. Some of those concerns relate to how IL and MIL services should be offered and what lessons should be planned to develop e-learning, e-teaching and MIL between Mexico and United States. In these circumstances, it was necessary to crowdsource ideas that would create strategies, processes, policies, and LibGuides related to the educational support of librarians in both synchronous and asynchronous modalities.

Crowdsourcing is defined as 'the process of leveraging public participation in or contributions to projects and activities' (Hedges & Dunn, 2018, p. 1). The authors realised that online courses and other educational and training programmes collaboratively developed by librarians and their communities of practice should be considered within an overarching framework with specific objectives for each institution.

In this context, the aim of this study was to analyse the strategies, processes, policies, and other activities in the authors' institutions (UMD, UNAM, BUAP) to identify strengths, similarities and changes experienced before, during, and in the months after quarantine.

### **1. From face-to-face IL to MIL**

The first challenge that came up for discussion among Minnesota-México library users and staff was: how many changes have we had to make to deal with IL programmes since COVID-19?

With the pandemic crisis, the associated impact on the economy and other factors affecting academic libraries, two important aspects have been highlighted:

- 1) Expert communities (libraries, faculty members, students, etc.) who are experienced in the use of an integral e-learning platform will be a vital resource for the development of online programmes within Mexican universities.
- 2) Although services need to be adapted to individual contexts, and the pandemic created adverse situations that required improvisation, it is clear that developing strategies for teaching IL and MIL in e-learning environments is a process that will need international collaboration between libraries and librarians, especially in the use of electronic resources and their copyrights. This international collaboration can expand opportunities to learn and develop in ways that build on the resources of each other's libraries, as well as the efforts and experiments of library associations or communities of practice in supporting student learning, extending access to resources, and adapting libraries during times of crisis. These international collaborations provide a chance to expand the development of best practices enriched by the diversity of experiences and conditions in each other's countries.

This collaboration depends significantly on internet access and the behaviour of internet users. In the most recent survey of internet access in Mexico, the results show that 70.1% of the total population has access to the Internet, but 91.5% of this population use it for entertainment (INEGI, 2019); in contrast, 87% of population in the United States have access to the internet in houses but 100% of those have access through mobiles (World Bank, 2020).

In Mexico, the use of entertainment platforms (social networks, tv, radio, etc.) has become increasingly popular as a way to support e-learning content. For example, events recorded and published simultaneously on YouTube (BibliotecasUNAM, 2021) and Facebook (DGBSDI, 2021), have more than one thousand followers and their impact has been national and international.

The University of Minnesota Duluth (UMD) supports online e-learning programmes through integrated platform systems such as Canvas. Since 2014, UMD has been a member of the Unizin consortium of research institutions in the United States of America which represents more than 900,000 students in the country. The aim of this ecosystem is to create a shared framework between higher education institutions.

From this perspective, the future of international collaboration between Mexican and American academic libraries could be integrated across social media, entertainment platforms, and learning management systems. When considering this possibility with regard to online IL and MIL programmes, it is vital to take into account the five categories outlined by Zhu et al. (2020) in their study of 'social annotation' during e-learning:

1. Processing domain-specific knowledge
2. Argumentation and inquiry
3. Literacy skills
4. Instruction and peer assessment
5. Connecting online learning spaces

If we consider the IFLA definition of MIL as extending 'beyond communication and information technologies to encompass learning, critical thinking, and interpretative skills across and beyond professional and educational boundaries' (IFLA, 2011), the question emerges as to how these skills will change the role of librarians as teachers after COVID-19.

Before COVID-19, the role of librarians as teachers was controversial in terms of authority over academic programmes, but, as Campbello outlines, a librarian, as an ‘instructional consultant’:

should integrate the library program into the school curriculum, collaborate in the teaching-learning period and in the planning and implementation of curricular activities (2010, p. 91).

The COVID-19 crisis showed us how important it is for academic librarians, faculty members, and institutions to share know-how, good practices, impacts, and feedback from library services to develop the IL and MIL involved in the e-learning of academic programmes.

### **Contact and communication in the digital library as a comparative analysis between IL and MIL**

The COVID-19 pandemic was the trigger that forced resources and services to adapt to a new reality with social distancing and no printed collections (Guo & Huang, 2021). The first obvious change in Mexican universities was the demand to create more online services, courses, and events to support the virtual agenda of the library systems and their institutions.

This study was conducted from October 2020 until March 2021 between the National Autonomous University of Mexico, University of Minnesota Duluth, and the Autonomous University of Puebla. Its methodology was qualitative, and its technique was descriptive. Data on the services, their techniques, tools, and experiences were provided by the authors, who were part of the group that designed, planned, and implemented the activities described. The two axes analysed were the IL and Media Literacy (ML) reports, as a list of actions, activities, resources, and services used to counteract isolation and efficiently supply existing resources to our communities.

As Table 1 shows, the websites of the libraries that formed the basis of this study were the main channel of communication between libraries and their communities before and after the pandemic.

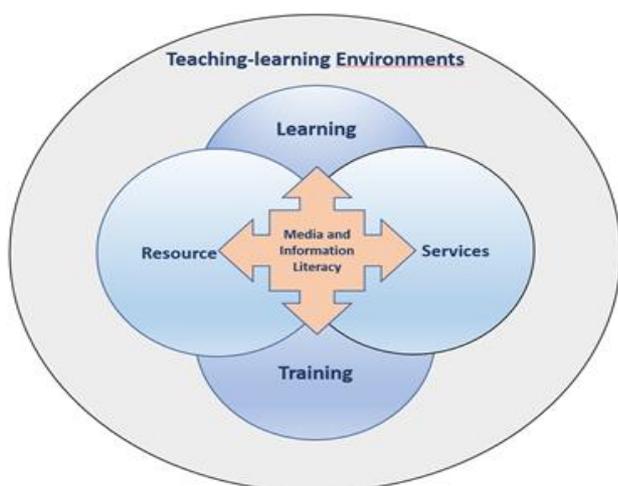
**Table 1:** IL library service programmes posted in the digital library after COVID-19

<b>Web Page</b>			
<b>Information resources</b>	<b>UNAM</b>	<b>BUAP</b>	<b>UMD</b>
COVID-19 information	X	X	X
IL	X	NO	X
Tutorials, manuals, guides, procedures	X	X	X
<b>Online events</b>			
Webinars	X	X	X
Conferences	X	X	X
Courses	X	X	X
Forums	X	X	X
Workshops	X	NO	X
<b>Digital services</b>			
Chat	X	X	X
Virtual Interlibrary Loan	X	X	X
Personalised consulting	X	X	X

During the pandemic, UMD launched outreach efforts that included the ‘Northeastern Minnesota COVID-19 Community Archive’, a project that started as an example of emerging ways for creating, preserving, and sharing content about COVID-19 in the university. This idea was put into action by members of UMD campus: <https://libguides.d.umn.edu/covid-19>. They also hosted a webinar featuring a visiting professor talking about presidential election polling, and staff members organised an online ‘unconference’ that can be consulted on this website: <https://lakesuperiorlibrariessymposium.com/>.

In the cases of UNAM and BUAP, two axes were analysed as shown in Figure 1. IL and MIL were registered, comparing the actions, activities, resources, and services used to counteract isolation and ensure that existing resources reached our communities efficiently.

**Figure 1:** Global analysis structure

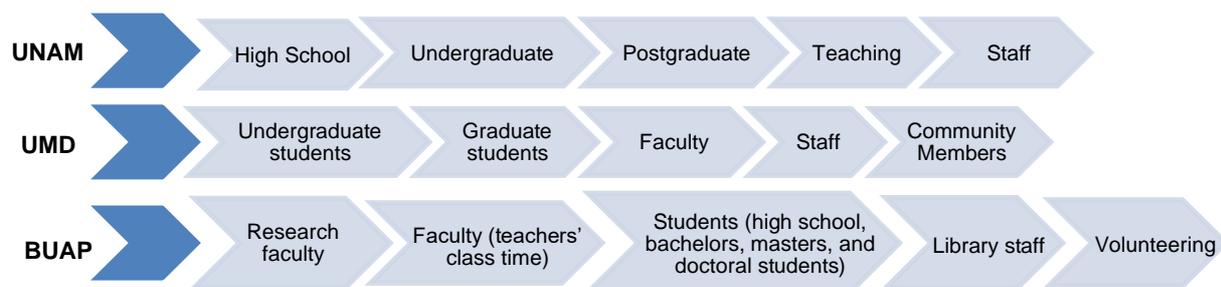


The study had four main factors for analysis: learning, information resources, training, and library services. To obtain the data of the participant institutions, it was necessary to create a guide to analysis and explore the different elements and communication between them. Librarians in leadership roles conducted interviews over Zoom to obtain responses that identified the actions, activities and processes carried out during the pandemic for IL and MIL.

## 2. Results and explanations of how IL and MIL were used to face the COVID-19 pandemic

The UNAM, BUAP and UMD have different needs for information in relation to academic programmes with different educational levels, as Figure 2 shows. IL activities and services in the UNAM, UMD and BUAP libraries have a significant impact on the entire community, including the staff.

**Figure 2:** Community impact of IL in the UNAM, UMD and BUAP.



Since COVID-19, digital resources have increased in number and have been used more heavily. Some of the service orientations that stood out in a positive way during the pandemic and that we already see reflected in other institutions are:

1. Creation of courses for teaching support
2. Researcher accompaniment
3. Co-participation in research development
4. Personalised assistance for focal groups

The IL service in its traditional form still supports meaningful learning within academic programmes in the university and the design of any new model depends on the perspective of the library and the aims proposed in the institutional plans. One challenge was how to organise and preserve the material produced during the pandemic and store it on platforms or social networks. We must think about the new policies that will be generated due to the creation of this material that proved so important for these institutions.

Out of the meaningful learning resources that received more positive feedback from the online communities, those that offer potential future growth opportunities are:

1. Creation of repositories that manage and preserve the learning resources created during the pandemic.
2. Didactic guides on the use of the digital library and other information resources.
3. Video tutorials.
4. Online workshops and MOOCs (Massive Open Online Courses) about different topics of interest to the community.

As Figure 3 shows, the IL analysis of UMD, UNAM and BUAP registers the main activities that were carried out following the massive library closures caused by the COVID-19 pandemic.

**Figure 3:** Activities carried out following library closures due to COVID-19

Massive library closures (COVID-19)		
UNAM	UMD	BUAP
<ul style="list-style-type: none"> <li>• Videoconferences, working meetings</li> <li>• Updating training</li> <li>• Planning for adaptation from face-to-face to virtual</li> <li>• Planning and scheduling of implementation activities</li> </ul>	<ul style="list-style-type: none"> <li>• Online meetings</li> <li>• Utilised the Hathi Trust Emergency Temporary Access Service to provide access to digitised texts in the University of Minnesota collection to supplement e-resources (ebooks and e-journals)</li> <li>• Fulfilled interlibrary loan requests with digital resources</li> <li>• Incorporated resources temporarily made free by publishers</li> <li>• Online research help continued uninterrupted</li> <li>• Planning for resumption of on-site use of collections and facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Total closure of the facilities with restricted access</li> <li>• Working meetings</li> <li>• Webinars (coordinated with the database providers)</li> <li>• Book presentations on YouTube, Facebook, Twitter, Instagram</li> <li>• Virtual Audits</li> <li>• National Institute of Geography and Statistics (INEGI)</li> <li>• Digital Repository restrictions with software antiplagiarism (Turnitin)</li> <li>• COVID-19 plan restricted work</li> </ul>

The implementation of IL online services was not a new task for the librarians but coordinating the work behind these types of activities without being physically present and with limited access to libraries represented a new challenge. Figure 4 shows the priority actions during the total and partial closure of the facilities.

**Figure 4:** Priority actions within UNAM, UMD, and BUAP during library closures

Services given priority		
UNAM	UMD	BUAP
<ul style="list-style-type: none"> <li>• Courses</li> <li>• IL workshops</li> <li>• Personalised inquiries</li> <li>• Online chat (referral service)</li> <li>• Document retrieval service</li> <li>• Bibliographic retrieval service</li> </ul>	<ul style="list-style-type: none"> <li>• Adapted teaching to be exclusively online, primarily asynchronous with the addition of synchronous in fall</li> <li>• Research support provided online only via chat, email, and Zoom</li> <li>• Electronic reserves only</li> <li>• Scanning on demand for archival researchers</li> <li>• Asynchronous, physically distanced activities to replicate student engagement events (Bulldog Welcome Week and Stressless Week)</li> </ul>	<ul style="list-style-type: none"> <li>• Modification of loan delivery dates (February to August 2020)</li> <li>• Disinfection rooms for 14-day isolation of the bibliographic material</li> <li>• Indefinite suspension of interlibrary loans</li> <li>• Staff rotation and suspension of activities for vulnerable personnel</li> </ul>

The aim of IL as a library service is to supply the information needs of the community but at the same time all activities were required to follow rules and guidelines authorised by the institutional plans. In Figure 5 the level of specialisation of Kathryn A. Martin Library (KAML) in the University of Minnesota, compared with the library systems in the Mexican universities UNAM and BUAP, is evident.

**Figure 5:** Policies and regulations followed by UNAM, UMD, and BUAP

Policies and regulations		
UNAM	UMD	BUAP
ACRL IFLA Information literacy standards in higher education (Lau & Cortés, 2004)	Centers for Disease Control and the Minnesota Department of Health ACRL Information Literacy Framework	ACLR ALA IFLA AMBAC (Mexican Association of Librarians, Civil Association) CNB (National College of Librarians)

The pedagogical approach to teaching-learning in each university has different purposes, perspectives and tools that are described in Figure 6. The pedagogical model based on competencies seeks to teach specific skills to students and from this to evaluate their competence to perform tasks related to their area of knowledge.

**Figure 6:** Pedagogical approaches

Pedagogical approach to teaching-learning (COVID-19)		
UNAM	UMD	BUAP
Pedagogical model based on competencies Gamification Inverted classroom methodology	ACRL Information Literacy Framework Understanding by Design	Pedagogical model based on competencies Access, Use and Management of Information (AUMI) Information Literacy (in process)

Software		
UNAM	UMD	BUAP
Mentimeter Kahoot Socrative	Canvas Learning Management System Springshare Libguides Zoom	Blackboard Google classroom Teams Zoom Google Meetings Facebook Live WhatsApp

Evaluation process		
UNAM	UMD	BUAP
Descriptive charts Rubrics Diagnostic questionnaires	Feedback meeting with instructors/faculty	ISO 9001:2015 (User satisfaction survey) Anti-bribery ISO 37001:2016 Institutional Development Plan BUAP 2017-2021

The AUMI seeks to merge interactive applications with a playful approach to teaching IL, offering a creative perspective that helps to keep the students' attention and to assimilate knowledge with the help of games and challenges that can be posed individually or in groups under a cooperative learning approach.

Although it should be noted that IL activities were successfully carried out, the use of media also played an important role in the communication of content. MIL activities in UNAM and BUAP required a complex design, and the aim was to focus on the development of critical reading of digital content.

Since the COVID-19 pandemic stopped the in-person provision of all library services, the UNAM and BUAP used social networks and other popular channels to transmit their events and other specialised courses to the students, the staff, and the faculty members. As Figure 7 explains, large-scale social media broadcasting activities had more impact in the Mexican universities.

**Figure 7:** MIL provision in UNMA, UMD, & BUAP

General information about Media Information Literacy (MIL) within the universities		
UNAM	UMD	BUAP
<ul style="list-style-type: none"> <li>• Webinars</li> <li>• Conference</li> <li>• Forum</li> <li>• Presentations</li> <li>• Thematic tables</li> <li>• Courses</li> <li>• Workshops</li> </ul>	<ul style="list-style-type: none"> <li>• Author discussion via Zoom</li> </ul>	<ul style="list-style-type: none"> <li>• Courses (Database publishers and providers)</li> <li>• National Consortium of Scientific and Technological Information</li> <li>• Resources courses (CONRICYT)</li> <li>• Workshops</li> <li>• Ficómics BUAP</li> <li>• Book presentations</li> <li>• South-East Network of University</li> <li>• Libraries (REBIUC)</li> </ul>

The topics covered in the events from March 2019 until the end of the year 2020 were focused on explaining the use and management of the digital library, digital resources, and other aspects related to the use of printed collections and other library issues. In addition, as the Figure 8 shows, roundtable discussions were held on different video platforms regarding the main problems related to the work of libraries in the face of the pandemic.

**Figure 8:** Topics covered and platforms used

Topics, planning discussions and media communication in libraries		
UNAM	UMD	BUAP
<ul style="list-style-type: none"> <li>• Information Literacy and COVID</li> <li>• Library Services and COVID</li> <li>• Hygiene and safety and COVID</li> <li>• Copyright</li> </ul>	<ul style="list-style-type: none"> <li>• Author discussion of presidential election</li> <li>• Polling via Zoom</li> <li>• Information literacy</li> <li>• Database assistance</li> <li>• Research process assistance</li> <li>• Information evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Databases of the Digital Library BUAP</li> <li>• Planning and development of library services after the crisis of COVID-19</li> <li>• Academic Integrity</li> <li>• Anti-plagiarism software</li> <li>• Evaluation of academic libraries through the National Association of Universities and Institutions of Higher Education (ANUIES)</li> </ul>

Software		
UNAM	UMD	BUAP
<ul style="list-style-type: none"> <li>• Zoom</li> <li>• Blackboard</li> <li>• Webex</li> <li>• Facebook Live</li> <li>• YouTube</li> </ul>	<ul style="list-style-type: none"> <li>• Zoom</li> <li>• Canvas</li> </ul>	<ul style="list-style-type: none"> <li>• Zoom</li> <li>• Blackboard</li> <li>• Webex</li> <li>• Facebook Live</li> <li>• YouTube</li> <li>• Google meetings</li> <li>• WhatsApp</li> </ul>

## Conclusion

The COVID-19 crisis has demonstrated that the role of libraries had a significant impact on the teaching-learning process of distance students and teachers. It is important to emphasise that the use of digital resources and services does not replace the value of library work, as has been discussed in the past, even when this was done from home. The response to the demands of the university community was optimal in all three universities and the transition to virtual media demonstrated the ability to adapt to current circumstances.

Although the pandemic forced decision making, the libraries of the universities participating in the analysis did not experience a significant change in the work previously done in digital environments in Mexico, but new interactions were discovered within social networks and other unexpected communities such as families and people close to the students.

The use of international guidelines and government restrictions played an active role in the creation of contingency agendas within libraries and their universities. The total suspension of face-to-face classes created a new digital work environment for the staff of the Kathryn A. Martin Library.

In fact, the COVID-19 crisis and its restrictions opened the possibility to be more creative and flexible about the digital library, its services and collections. These innovations saw the creation of different guides and policies to support access to LibGuides, academic writing and library modules on Canvas, courses, online chat, and Zoom meetings with different groups with relevant expertise and liaison librarians.

The retirement of many librarians had a significant impact on the division of tasks, but the implementation of home-based work, the flexibility of work patterns and the schedules set by department leaders, helped the work team to avoid burnout. This collaboration helped UMD create new opportunities for inclusion and cultural awareness in the library by expanding and internationalising perspectives and partnerships in resource sharing, IL, and library outreach. Furthermore, this exchange of information highlights the ways in which the organisations involved can learn from each other's use of platforms, social media and/or learning management systems, to connect with students and to leverage the content created for those platforms to benefit the entire campus community.

In the case of UNAM, the online reference service played a leading role in the COVID-19 crisis, because there was a long history of experience in its implementation. The use of free software such as Google Meetings, Zoom and social networks was indispensable for the adaptation of traditional services to digital services, and the use of videoconferencing platforms was necessary to humanise contact with users and reduce the dangers of heat stroke and confinement.

For the library system of the BUAP, the transmission of webinars and the use of social networks was necessary due to the limitations of its staff regarding the use of specialised software. It is interesting to mention that in the case of BUAP, professors and students who could not consult printed books were forced to redesign their curricular plans based on the contents of the digital library. The sessions were developed in collaboration with database providers and other publishers attached to its digital library. In addition to the measures above, the use of applications such as WhatsApp and Instagram, among other options, established new means of communication between their learning communities and their librarians.

The analysis of these three academic libraries showed that regardless of the budget available in each of them, the preparation and experience of the librarian is a key element in the design and innovation of their services. The person operating these systems and their experience in the use, management, and protection of data has considerable influence.

The exchange of ideas, techniques and experiences as a part of this international cooperation resulted in the prospective design and implementation of other online services such as academic writing modules in other languages and topics related to inclusion, anti-racism and international cooperation, as part of a strengthening of the values that libraries teach their community.

With the gradual return of the university community, libraries and their services are being planned in a mixed format (in person and distance/online). The new normality has demonstrated that the advantages of this work system make it a viable option that reduces risks and establishes new learning horizons, especially among librarian communities.

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