

## **Exploring the impact of the pandemic on reference and research services: A literature review**

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*This is an Accepted Manuscript of an article published by Taylor & Francis in New Review of Academic Librarianship on 07 Oct 2021, available online:*

<https://www.tandfonline.com/doi/full/10.1080/13614533.2021.1990092>

## **Exploring the impact of the pandemic on reference and research services: A literature review**

This literature review explores the impact of COVID-19 on reference and research services in academic libraries. The first half of the review identifies changes and initiatives during the previous ten years using meaningful examples of changes. Gathering information from listservs, conference schedules, trade publications, websites, and emerging research, the second half of this review revisits changes to reference and research services from Spring 2020-Summer 2021. The literature is extensive, for that reason, we have identified meaningful experiences that can be translated into the pre- and intra-pandemic service practices. The pandemic advanced many existing and emerging trends, allowed libraries to find innovative solutions to new problems, and paused other areas. While this literature review cannot predict the future, it will allow readers to reflect on real case experiences with the expectations that our work will enlighten others in creating or adapting services for a new generation of reference and research services.

Keywords: reference services, research services, academic libraries, chat reference, COVID-19

### **Introduction**

The COVID-19 crisis has had a profound effect on all aspects of human endeavours. For higher education, these are just a few of hundreds of titles of articles from academic and general readers publications in recent months: Pandemic-to-permanent: 11 lasting changes to higher education; Higher education and work amid crisis; Higher education during the pandemic: Truths and takeaways; How the COVID-19 pandemic has impacted higher education; How the pandemic forever changed higher education; and the impact of coronavirus on higher education. They cover a wide spectrum of topics, from moving to the digital classroom, to issues related to students and workers wellness. The impact is clear and obvious; if we look at other aspects of society, whether transportation, health services, or commerce, for example, the conversation is active and continuous like in higher education.

In this literature review, we explore the impact on reference and research services in the academic libraries. Our approach consists of identifying changes and initiatives during the previous ten years as related to those services and then surveying the transition of those services from the spring of 2020 until summer 2021. In both cases, the literature is extensive, for that reason, we have identified meaningful experiences that can be translated into the pre- and intra-pandemic service practices. We are not intending to foresee the future, rather this is a literature review to reflect on real case experiences with the expectations that our work will enlighten others in creating or adapting services for a new generation of reference and research services.

## **Methodology**

As mentioned before, the literature about changes to, and the transformation of academic libraries is extensive. For this project, elements were borrowed from techniques used in systematic reviews and in traditional-narrative reviews, and in the process, we gained a comprehensive knowledge of the subject under exploration and used techniques to find and analyse the information available. The book of Efron and Ravid (2019) about writing a literature review has been a valuable tool.

To focus this research on specific topics, the first step was done by browsing the Table of Contents, Introduction, and perusing appropriate chapters from recent books such as: *New concepts in digital reference* (Lankes, 2009); *The atlas of new librarianship* (Lankes, 2011); *Planning our future libraries: Blueprints for 2025* (Leeder & Frierson, 2014); *Library user metaphors and services: how librarians look at the users* (Johannsen, 2015); *Marketing the 21st century library: The time is now* (Lucas-Alfieri, 2015); *Reimagining reference in the 21st century* (Dove & Tyckoson, 2015); and *Academic library services for graduate students: Supporting future academics and professionals* (Forbes & Keeran, 2020); further, conference programs of

appropriate professional organizations, as well as continuing education programs were also included for examination. This process allowed for the selection of current practices about reference and research services that are the center of this article. Topics selected from these resources include: roaming reference, chat/virtual reference, embedded librarians, training, one-stop service, communicating with users, and learning commons.

For the pre-pandemic last ten years, the set of topics selected then were searched for in two databases: *Library, Information Science and Technology Abstracts (LISTA)*, and *Web of Science*. Searches were limited to the years from 2010 to 2020, and in the case of LISTA, to scholarly journals; in this way, results are validated by articles published in refereed journals. Following the principles presented in the book by Efron and Ravid (2019) chapter's *Evaluating Research Articles*, a rigorous process of analyzing first the titles and then the abstracts was performed with the purpose of identifying works that were relevant, unique, and good representations of each topic.

The second section of this work reflects literature published during the pandemic. Since the peer review process is slow, materials were gathered from a variety of sources published or made available between March 2020 and July 2021 including listservs, conference schedules and presentations, trade publications, websites, and emerging research. Listservs from the ALA were browsed and/or searched for the period selected. Conference schedules and presentations were browsed from the North American Online Virtual Reference Conference (2019 and 2021), ALA (2021), and ACRL (2021). Specific websites browsed include: ACRL's Pandemic Resources for Academic Libraries (<https://acrl.libguides.com/pandemic>), ALA's press releases (<https://www.ala.org/news/press-releases>), Reference and User Services Section (RUSA) of the ALA (<https://www.ala.org/rusa/>), as well as the Chronicle of Higher

Education. This is not a comprehensive list of places where conversations about the pandemic and reference services were happening, but represent some of the larger conversations on these topics.

When it came to searching the literature for trade publications and emerging research, particular attention was paid to trade journals since few peer reviewed articles were coming out on these topics at the time. LISTA, Library Literature and Information Science, Google Scholar, and Google were all searched in the first two weeks of July. Results were limited by date to 2020-forward to capture material released during the pandemic, and were limited to English-language materials. Although a variety of search terms were used, some combination of the concepts for the pandemic, academic libraries and reference services/selected topics were searched. Some search terms are listed below:

- Pandemic, COVID-19, coronavirus
- Academic librar\*
- Reference services, chat reference, virtual reference, staff, training, consultations, instruction, teaching, embedded librarian, website, communications, learning commons

The resulting literature review for the pandemic period is not intended to be comprehensive, but merely a snapshot of what reference services for the identified topics looked like one-year into the pandemic in summer 2021. We have approached this review influenced by the inspirational message of Jennifer M. Gidley, author of *The future: A very short introduction*: "In spite of the potential for catastrophe that current trends suggest, we are also in the best position ever to turn negative trends around through the means at our disposal." (Gidley, 2017).

### **The pre-pandemic last ten years**

Academic library services have been evolving through recent decades as new technologies have been introduced in library operations. In this section, several main

topics representing current trends of the last ten years in reference services are discussed; meaning the ten years before the COVID-19 pandemic. This period is important because several significant changes continued to develop or began to be introduced; they are the basis for what would be expected in the next few years. Although this is not a comprehensive literature review, some of the most significant topics during that period are presented in this section, such as roaming reference, chat/virtual reference, staff training, one-stop service, communicating with users, and learning commons.

A search in Library, Information Science & Technology Abstracts of the term "change" as a keyword in the title and limited to scholarly journals during the last 10 years produced 2,000 items; this is an average of 200 articles per year and a strong indication of the dynamic of change occurring in libraries. In the case of reference services, many solutions have been proposed, some prevailed, others ended with mixed results.

In an article, Coleman et al. (2016) presents the results of a survey for a two-year period that explores the changes in reference desk services in academic libraries. The results show changes in staffing from MLS-holding librarians to student employees, reduction of in-person reference points, increase in in-person appointments, increase in online help features like subject guides, tutorials, and FAQ pages. The respondents also mentioned greater promotion of services, the improvement of information literacy programs, and virtual reference.

Reference desk consolidations have been a decision made by many libraries in recent years. Fritch et al. (2014) report the consolidation of eight service desks into one at the main floor. The decision was made based on surveys and analysing quantitative and qualitative data. The consolidations created logistical issues such as training,

adapting to the new setting, and patrons missing the services provided on other floors. Some additional changes were done after the first year of operation. This article is a good example of service consolidation projects that occurred in recent years.

Changes also have occurred in reference collections; Cordell et al. (2014), in their essay, indicate the importance of reference collections that reflect the curriculum and can be used as discovery tools in information literacy. The authors assert that optimizing the resources available for a well-balanced collection in content and formats is a continuous labour; the selection of reference materials depend on several local factors and that having an article level database for references sources can simplify the discovery process for students. The next sections provide more specific areas of continuing changes.

### ***Roaming reference***

The introduction of digital resources, the reduction of transactions at the reference desk and the need for establishing more interaction with students, faculty and staff have been some of the factors that motivated librarians to create roaming services.

In a roaming/roving reference, librarians identify and approach students throughout the library and provide them with help. Askew (2015) reports on the roaming reference service at Rutgers University at Newark; the results of this study are based on surveys completed by students and librarians which shows 79% of students having a "satisfied" or "very satisfied" experience. Nevertheless, the program needed better marketing, and librarians needed to find a better way to be recognized during their roaming.

In a study authored by Sharman (2014), roving is extended to other places on campus; librarians equipped with tablets are deployed to help students in areas frequented by them like student centres and resources units. The effectiveness of

different types of devices used and the selection of locations chosen are part of the study. Surveys and peer observations were the methods used for evaluating the service.

Kramer (2020) examines the interaction of students at a learning common with roaming library staff. The analysis of data collected compares traditional reference and roaming services. It demonstrates the effectiveness of the service when helping students with technical or access problems, and search strategies at the point-of-need, something that is not always possible to reproduce at a reference desk. The benefits for student learning are well documented.

### *Chat/virtual reference*

Chat reference services in academic libraries already have a long history before 2020; in 2004 the Reference & User Services Association published the “Guidelines for Implementing and Maintaining Virtual Reference Services.” During the last ten years, the different modalities of virtual reference have become more integrated into the reference services.

Yang and Dalal (2015) investigate the virtual reference services of 362 libraries by examining their websites. This study shows that 74% of these libraries have at least one virtual reference services such as chat, phone, email, IM, text, or video chat, and 47.5% offer a chat service. This last number is interesting because it indicates that although chat reference was becoming an additional service by 2015, this date was only five years before the COVID-19 pandemic. Therefore, from this study we can imply that it is likely that by the spring of 2020, some libraries were not ready to provide this service. The article also produces extensive data about the products and technologies available.

Dempsey (2019) investigates the way referrals are done in virtual services. Referrals are done when the staff at the service recognized the need to transfer the

transaction to another staff better fit to respond. In this study, referrals to subject specialists are analysed. Chat staff often includes librarians, staff, and students, therefore referrals of the 24% sent to subject specialists depend on decisions made by the person at the service. The study shows that librarians referred questions more often to subject specialists than staff or students.

With the propagation of the services, staffing issues became evident. Meert-Williston and Sandieson (2019) examine the 2,734 transactions that occurred at a large Canadian institution. The results show 25% are reference; 9% about citations; 7% technology and 51% other library services. In addition, 468 were ready-reference and 112 were in-depth consultations. The authors conclude that the use of high-level, mid-level and basic-level staff expertise should be considered for staffing the service and that for basic-level staff, proper training is essential.

The effectiveness, efficiency and satisfaction of virtual reference is studied by Chow and Croxton (2014). Factors such as the medium used, the type of questions, and the kind of patrons are examined. A randomly selected group were given a set of pre-designed questions and the subjects completed a survey of their experiences. This study is significant because although it was a controlled experiment, it indicates the importance of evaluating a service that was increasingly expanding.

### ***Embedded librarians***

Considered by experts as an extension of the role of the traditional reference model, or of the subject/liaisons service, the role of embedded librarian is one in which librarians participate in the spaces of instructors and students by providing research assistance, instruction, and other services.

Murphy et al. (2020) discuss benefits of collaborations between librarians with teaching faculties when co-teaching a course for first-year undergraduate students

during the Fall of 2018. They reflect on the opportunity of working with the instructor on content creation, participating in teaching, student evaluation, and mentoring students. Also, the ability as a team to integrate innovative programming and having a stronger impact on student than in one-shot sessions.

Gibeault (2018) shows the results of a study that focuses on a learning management system (LMS) organization of materials. Usually, the incorporation of library materials in an LMS depends on many factors. Incorporating those materials is part of an embedded librarian's activities, the problem is that usually they are not fully integrated into the learning process of a class; library materials are considered library stuff. This study concludes that more work is needed on how embedded librarians can create more effective learning space in an LMS.

Hoffman et al. (2017) work with the instructors and staff from the writing center in an inquiry-based learning course with the object of integrating library research and writing skills. Several sessions were taught by the librarians about information research, citation management, and evaluation of sources. The results from feedback from instructors, staff, and students were very positive; embedded librarians benefited from having to work with students in a truly integrated teaching environment.

### ***Training***

The need for staff training is clearly stated by the development of “Professional Competencies for Reference and User Services Librarians,” by the Reference and User Services Association of the American Library Association in 2017. During the last ten years, the role of the reference staff has substantially shifted from traditional duties to becoming more of an information and resource mediator. Also, due to the increase of access to academic information in a digital format, reference transactions at the desk have been transformed to transactions in different modalities.

The results of a one-semester study of data gathered about reference interactions in a setting that combines an academic and a public library is presented by Chan (2014). The purpose was to identify skills needed to work as a reference librarian and to design the proper training and communication for the staff.

Todorinova and Torrence (2014) discuss the process of developing a training program for the reference staff at the University of South Florida. After analysing several case studies from other settings, the group developed an integrated program that includes input from all stakeholders, particularly from students using the service. The appendix of this article includes the list of core competencies used in the training program.

As the number of electronic resources increases, it has become important to create training for public services staff. Jurczyk and Walsh (2019) describe the process of developing a training program dealing with the most common barriers users faced when using electronic resources. Although this case study took place in a large research-intensive university, the communality of issues is found in academic libraries regardless of size. Based on a survey of problems identified, a team developed the training program for public service staff.

### ***One-stop service***

The consolidation of several service desks into one-stop service points began earlier than 2010 but continued to be a decision made by academic libraries in the last ten years. The type of consolidations depends on the size of the library, the number and kind of services in a multi-floor facility, and some others organizational arrangements; the reasons most prevalent are the decline of transactions at a desk, budgetary considerations, as well the utilization of staff in other activities such as roaming, teaching, and embedding.

McClure and Bravender (2013) work in an extensive quantitative study of the number and the kind of transactions occurring during a year period. To determine the effectiveness of having a reference desk or adapting a one-stop service point, they used the techniques of creating interval periods of having and not having a reference desk staffed. The results of this study show that in either case, the number of reference questions were the same whether they were responded to by a librarian at the desk or if they were done on an on-call system. In this case study, these results justified the creation of a one-stop service.

One-stop service can also occur in the virtual environment, Farrell and Leouis (2017) describe how a large academic library moved from six products to one integrated system. The authors indicate that there are several platforms for integrated reference system on the market and some are in-house designed platforms. Since these systems have numerous options, from text and chat to the capability of recording virtual transactions as well as statistic keeping features, the proper selection of a product and its options play an important role in the development of the service. In this case study, after two trials of a product, its selection has been successful but continuing training of the staff is a concern.

As mentioned in a previous section, the article of Fritch et al. (2014) describes the consolidation of eight service desks located in different floors into one at the main floor. The analysis from surveys and quantitative and qualitative data supported the actions taken. The consolidations created logistical issues such as training, adapting to the new setting, and patrons missing the services provided in other floors. After the first year of operation, the one-stop service point was modified by adding a separate reference desk also on the first floor.

### *Communicating with users*

Communicating with users continued to be an important topic of the last ten years; the modality comes in different formats, such as by creating meaningful directional signs in the building or in designing people-friendly websites. Adopting proper ways for communicating with users is important for providing effective reference and research services.

O'Neill and Guilfoyle (2015) survey students about the meaning of library jargon used in signage in the building. For example, are words posted on signs meaningful to them? Based on the results and on several well documented past studies, the authors suggest that, for example, for the word "reference" other terms such as help, assistance, ask, research, or questions could be more meaningful.

In the last ten years, several works about the planning, design, and assessment of websites have been published, Desmarais and Louderback (2020) is probably the last one before the pandemic. The authors create a survey to explore the user experience with the current website and their expectations for navigation and content for the design of the next version. It is concluded that better design of websites is essential when the user's behaviours are changing.

Salisbury and Griffis (2014) investigate how libraries communicate their purposes in the form of Mission Statements as well as the use of a marketing slogan on their websites. The role of the academic library has continuously evolved, but only in recent years, powered by new technology has their mission been easily available to the public. They examine the websites of 113 ARL libraries, the results show 84% have their mission statement posted and 7% have a slogan on their website. The authors also examine how easy it was to find both in terms of number of steps. They conclude that communicating the mission statement is important at a time when online content continues to increase.

### *Learning commons*

The movement of creating learning commons in the traditional library has also been an important addition to the academic libraries. By integrating databases and digital objects with the new educational practices of connecting learners, the learning commons have become a practical environment for providing multiple services involving collaboration, teamwork, and discovery of knowledge.

The authors of this study, Allison et al. (2019), addressed the possible effects of relocating and weeding an extensive collection for the purpose of making floor space for a learning common in a large research library. Several questions were brought out by librarians and teaching faculty and a formal evaluation was carried out. The number of users of the building increased tremendously and when comparing pre- and post-interlibrary loan requests and circulation counts of titles in the collections, statistically significant negative effects were not observed. The article explores the issues of changing the traditional role of built and curated paper collections. Interestingly, the results did not show an increase in database usage.

In their case study, Jones and Grote (2018) present the process and benefits of remodelling a large traditional library into a discovery and learning commons; it is an example of similar space and services adaptations that have occurred in academic libraries. The authors state that the 21st century library design as the learning commons "is now a learning hub that strengthens our community—both on and beyond campus." It combined information, circulation, and reference services as well and as the writing centre, tutoring and IT support.

Wolfe et al. (2010) explore the big question of how reference librarians can contribute to the development of a Learning Center and their role in the new setting. They often are members of the planning and implementation committee; they possess experience and skill that are transferable, such as understanding of the user's

expectations, they have knowledge of the collections, have done outreach and advertisement projects, and collaborated with library staff and other campus units. Reference librarians have worked with new technologies, have teaching experience, and have shown versatility working with diverse patrons, co-workers, and library administrators.

### ***Transformation of the academic library***

In this section, a few words about the transformation of the academic libraries in the last ten years are presented; transformation which goes beyond the services provided by a typical reference and instruction department. It started with the report by Oakleaf (2010) "The Value of Academic Libraries: A Comprehensive Research and Review Report" which is a mapping of ACRL expectations of how academic libraries should respond to their institutions' mission and goals.

The Fritch et al. (2014) case study is a typical example of the effort of libraries moving toward transformation and change. The essay by Nicholson (2015) about the McDonaldization of libraries challenges the prevailing thinking of transformation and change and demonstrates the difficulties for the effective use of resources. Along those lines, Saunders (2015) examines the strategic plans of libraries to determine their priorities and the extent to which they are responding to current trends.

Meier (2016) interviews leaders in academic libraries and studies their decision-making style, strategic planning processes and the prioritization of projects to achieve strategic priorities. Further, the literature review of Cox (2018) reflects the changes occurring in academic libraries from 2013 to 2018. The essay is divided into two themes; theme one discusses the perspectives of stakeholders, directors, and deans. Theme two covers strategies developed for: aligning and leading, refocusing and

rebranding, reorganizing teams and roles, collaborating but maintaining identity, and communicating value.

Finally, the last ten years have been for reference and research services a time for experimenting with new technologies and finding ways to better interact with users. During the COVID-19 crisis, we have discovered new or modified pathways to provide services, which has altered our expectations of the future. The next section of this study will elaborate in detail changes expected to occur in the next few years.

### **Services during the Pandemic**

On March 17, 2020, the ALA recommended closing libraries to the public to reduce the spread of the novel coronavirus (American Library Association, 2020). For many libraries, virtual reference services were already in place before the pandemic, while others scrambled to move services online to replace in person services. According to the Academic Library Response to COVID-19 survey, which collected data from ~250 academic libraries, approximately 51% (128) of those surveyed shifted reference services to online/phone delivery between March 11-24, 2020 (Hinchliffe & Wolff-Eisenberg, 2020, March 24). What follows is an overview of some of the changes in the world of reference and research services since the pandemic. Since the peer review process is slow, most of the information informing this work was gathered from listservs, conference schedules and presentations, trade publications, websites, and emerging research.

Findings indicate that, in many cases, the pandemic has advanced existing and emerging trends. Things like chat reference, virtual reference consultations, instructional design and asynchronous online teaching, and open educational resources were gaining momentum prior to the pandemic, but the pandemic simply pushed forward their importance in libraries. The pandemic also allowed libraries to find

innovative solutions to the problems created by the pandemic. For example, libraries created drop-in Zoom reference, added screensharing to chat, collocated learning commons services virtually. The pandemic also paused other trends, with projects relating to physical reference services like roaming reference and building learning commons on hold in favour of more digital services. While the future is unclear, virtual reference services are of more importance than they were pre-pandemic, and even while our in-person services resume, the virtual world will be a central point of discussion as we move into a post-pandemic world.

### ***Staff and Training***

Interest in virtual reference services had been growing prior to the pandemic, with the first North American Virtual Reference Online Conference taking place online in February 2019 via Zoom (NAVROC, 2019). In 2019, many of the sessions centered around chat reference services and how to improve them. By the time of the second iteration of the conference in the pandemic world of 2021, most of the sessions were still about virtual chat reference services, but the scope of the conversation had grown. Conference sessions in 2021 showed increased attention to changes to virtual reference services during the pandemic, virtual consultations via video conference, mental health, and wellbeing for those who provide virtual reference services, and valuing diversity, equity, and inclusion in virtual reference services.

For many libraries, the transition to virtual reference services was based on expanding access to existing virtual services that already existed (Cox, 2020; Radford, 2020). Regardless, a wealth of programming was rapidly put together to help libraries with the transition. Early in the pandemic, ACRL created a free webcast series on Academic librarianship and one of the sessions focused exclusively on virtual reference sessions: “Tips for suddenly switching to online reference services”. This session

focused on keeping service updates concise and prominent on appropriate webpages, and advice about how to support staff through rapid changes. (Goetsch, et al., 2020).

As the pandemic continued, there was an explosion of virtual opportunities for library staff to share and learn from each other about how they responded to the pandemic. These included conference presentations, discussion groups, informal webinars, articles, and blog posts. Popular topics included updates on service models, chat reference, equity, diversity, and inclusion, teaching and learning, website accessibility and more.

### ***Chat Reference Expansion and Innovations***

One of the strongest areas of growth for virtual reference services during the pandemic has been chat reference. In a longitudinal survey of 300 academic librarians during the pandemic in the US, Radford, Costello, and Montague (2021) found that 71% of respondents reported an initial increase in demand for their virtual chat reference at the outset of the pandemic. They also report that many libraries expanded their chat reference services (Radford, Costello & Montague, 2021), and in another conference presentation, report an increase in question complexity (Radford, Budd, Connaway, & Costello, 2021).

Expanding chat reference came in a variety of formats and service models. DePaul University added access services staff to their chat reference workflows to meet growing demand (Dar, 2020). Hennepin County Library did not change their chat service hours but increased the number of shifts per day (Hirt & Richardson, 2021). Many other libraries expanded hours for their chat reference services (Radford, Costello & Montague, 2021; Dar, 2020; Dodd & Kotaska, 2020, Kooyman, 2021). This allowed libraries to accommodate increasing numbers of chat questions, and to help students who may not be in the same time zone as the library. For example, although Cornell had

24/7 chat reference prior to the pandemic, they expanded the number of hours that their staff answered questions from 35 hours a week during weekdays to 67 hours a week on 7 days. This allowed Cornell to handle 75.3% of incoming chats compared to just over 50% of chats from the same period in 2019 (Dodd & Kotaska, 2020). At Oregon State University, student employees who had worked on the information desk were trained to work on chat reference (McCaslin Kooyman, 2021). At Western University, an adapted service model allowed questions of differing complexities to be triaged to the appropriate library staff (Schumilas et al, 2021).

Some libraries expanded how they used chat reference by adding new features. McGill University added a Zoom integration to their chat service (via Springhare) which allows the librarian to request to move a chat reference question onto a Zoom call where patrons and students can screenshare to work through questions (Hervieux & Tummon, 2021). This is a great innovation since much of what libraries do in chat services is instruct and help patrons find and use digital services like databases and library catalogues.

### ***Videoconference Consultations***

One of the largest trends in reference consultations during the pandemic has been a move to holding either drop-in or scheduled reference consultations via videoconferencing software like Zoom, Google Meets, WebEx, etc. Prior to the pandemic, individual consultations in academic libraries have taken place in person, via email, and at least since 2007, by video conference (Booth, 2007). In an article that was initially received for publication just months prior to the pandemic, Chesney, Lowe and Puzier discuss the value and challenges of engaging distance learners with videoconference consultations (2020). They assert that videoconference consultations are an essential way to provide library services for distance and online students.

While videoconference consultations had been used by some libraries for distance learners prior to the pandemic, they grew in popularity during the pandemic. Some continued to provide reference consultations in person, as in Longwood University (Dar, 2020). Whereas others such as the University of Toronto at Mississauga experimented with drop-in virtual reference (Lu, 2021; Fabian, Memmot, Rouan & Clark, 2021). In this virtual reference service model, patrons click to enter a Zoom/videoconference waiting room, and staff let students in one at a time to help with reference questions. One of the benefits of this service is the ability for staff and patrons to share screens. Anecdotally, librarians at academic libraries across Illinois reported noticeable increases in demand for virtual consultations at a virtual discussion forum, “The Pandemic Made Me Do It: Changing Public Services”, in March 2021 (Archer-Helke et al).

In one of the first articles published since the pandemic on video reference, Cole and Raish (2020) provide scenarios that benefit from video reference and highlight some of the benefits of this service: screensharing, the ability to read non-verbal cues, and have longer, more in-depth conversations than typically done in chat. Many libraries plan to continue the service post-pandemic (Lu, 2021). In the future, it is expected that more research and discussion will focus on scheduling, service hours and evaluating video consultations.

### ***Embedded in the Learning Management System: Library instruction in a pandemic***

Teaching online was nothing new for many librarians who already created asynchronous instruction modules, videos, and LibGuides prior to the pandemic. With the onset of the pandemic, synchronous and asynchronous library instruction sessions often became the only options at many libraries. Reporting an update on the Academic Library Response to COVID-19 survey in October 2020, Lisa Hinchcliffe and Christine

Wolff-Eisenberg reported that about half of participating institutions were only providing online instruction at that time (Hinchcliffe & Wolff-Eisenberg, 2020, October 8). As such, pre-pandemic models and trends for video creation, asynchronous modules and best practices for online teaching quickly became trending topic for library conferences, blog posts and other informal training.

Although librarians may not have been able to embed themselves physically in the environment where their students work and study, many librarians continued to embed the library in the learning management system for their course. At Saginaw Valley State University, Micelle Strasz (2021) cited a growth in their embedded librarian model for the LMS rise from 101 courses in 2015, to 188 courses in 2020-2021. Strasz also provides best practices for librarians who want to embed themselves in an online course, including reaching out to faculty in key courses, discussing what kind of role the librarian will have in the course, adding a librarian link to the course, and sending a welcome email to students (2021).

At the Okanagan Campus of the University of British Columbia (Lonnnes et al, 2021), librarians, the Writing Center and faculty in the Chemistry department had been working for a couple years on embedded modules on academic integrity and information literacy in a first year Chemistry course. When the pandemic forced the course to move online, the team still had to make alterations as the lab work was being done online, the base of the embedded modules and assignments were done. This article shows the continuing value of collaborative relationships with faculty and the Writing Center in a pandemic, and the utility of embedding course content in the learning management system.

### ***Communicating Updates: Websites***

One of the biggest challenges with the onset of the pandemic was communicating updates and changes to library services and resources to patrons. In this area, libraries continued with existing methods including websites and social media, but also used new methods. One early effort to track communication from academic libraries in March 2020 was the crowdsourced list of Academic library LibGuides related to COVID-19 (Ford, 2020). At least 150 libraries contributed the URLs to any LibGuides they created concerning COVID-19. These guides range from information about COVID-19, local resources to support patrons during the pandemic, ideas for adults at home with children, to service changes, and instructions for using library resources remotely.

As libraries closed or reduced access, websites became increasingly important. Many relied on existing best practices for library website design and website accessibility was also a topic of increasing importance. ACRL Presents, a webcast series for academic libraries presented in late March and April, had two programs which focussed on website design. In “Tips for suddenly switching to online reference and access services,” Goetsch et al (2020), recommend communicating updates with staff frequently, and to “create a centralized place with vital messages” like the LibGuides mentioned above, and to give information at the point-of-need. In “Quickly implementing accessibility tools,” recommendations are made to about accessibility tools for assessing websites, as well as creating accessible documents (Fager & Wittek, 2020).

### ***Learning Commons***

Due to the pandemic, many libraries resorted to reduced or virtual service models during the pandemic, and this affected many of the service models mentioned in the previous section. For example, roaming reference, and embedded librarians in the

physical spaces of their subject areas aren't possible when you aren't in person.

However, some models such as one-stop service and learning commons models have found ways to move forward. In December 2020, Cox and Butler envisioned a possible future post-pandemic in which Learning Commons are student success hubs both in person and virtually, with a "common portal" for services and booking systems between various student success partners.

In some places, this virtual and physical Learning Commons model already exists or is underway. For example, Capilano University worked with other student success partners across campus to create a library chat service that was to be the forefront of the Learning Commons virtual presence during the pandemic (Aleksen & Nowak, 2021). For others, plans for a Learning Commons were put on hold and are being viewed in a new light with budget challenges forthcoming (Jarson, 2020).

## **Conclusion**

This literature review has covered many pre-pandemic trends in reference services, from growing chat reference, one-stop service models, and learning commons. After a review of these areas, this literature review revisits many of these trends in light of the pandemic, showing how things have changed, including the growth of virtual reference services and virtual spaces. This review is not intended to be comprehensive, but a snapshot of what reference and research services look like in a still-emerging post-pandemic world. After writing about these trends, the authors have more questions than answers. The status of the pandemic changes day-to-day, and the way it impacts academic libraries will continue to be felt for a long time. Certainly, the pandemic has changed reference services at libraries, and it seems that many of these changes are here to stay. One of the biggest challenges for libraries post-pandemic will be to decide which services to keep, and which pre-pandemic services may be outdated in a world

that is becoming increasingly virtual. As many of these innovations use technology, one of the other challenges will be how libraries can help patrons who have unequal access to technology. Libraries will also be returning to or continuing with many in person services and will want to evaluate the use of their physical reference spaces considering the pandemic and a world where physical distancing became the norm. We hope that future research will focus on principles of equity, diversity, and inclusion to ensure that research and reference services are meeting the needs of diverse groups.

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