



The hidden heritage of Arab libraries: Online catalogs and institutional barriers to discoverability

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Charles Kurzman and John D. Martin III

University of North Carolina at Chapel Hill, USA

Abstract

Advances in technology have made access to information about library holdings a seemingly universal feature of interaction with modern libraries. However, this type of access does not exist evenly throughout the world. There is a vast “hidden heritage” contained in Arab libraries without online public access catalogs. This article reports and summarizes findings from research conducted as part of a year-long investigation into international library collaboration in Arab libraries. The research included: (a) a survey of online presence for Arab libraries, (b) a survey of Arab librarians, and (c) focused panel discussions with Arab librarians and library scholars. This study finds that the relatively small online presence of libraries cannot be explained by material factors alone: institutional factors also play an important role in keeping information about library collections offline.

Keywords

Access to knowledge/information, Arab libraries, heritage, institutional barriers, material factors, Middle East

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Toward universal discoverability

At the dawn of the computing era, Vannevar Bush (1945: 105) envisioned a mechanical system that would make the entire “inheritance of acquired knowledge” accessible to all, displayed on desktop screens in every office and home and no longer “encased within stone walls of acceptable architectural form.” The Internet has progressed toward this vision at an astonishing pace, making more information more accessible than ever before in history.

But gaps in the record remain. Parallel with the “digital divide” (Dijk, 2005; Hilbert, 2016; National Telecommunications and Information Administration (NTIA), 1995; Norris, 2001; Ragnedda and Muschert, 2013)—inequality of access to the Internet—is what we call “hidden heritage”: inequality in the production and distribution of digital material. Hidden heritage refers to the vast archive of intellectual production that remains “encased within stone walls,” accessible only to library patrons and searchable only through paper indexes.

The founders of information science emphasized material solutions—scientific innovation and the

application of resources—to the problem of information scarcity, in keeping with the technocratic optimism of the era (Pursell, 2007). “The ways in which man produces, stores, and consults the record of the race,” wrote Vannevar Bush, will depend on “means as yet unknown which may come any day to accelerate technical progress as violently as did the advent of the thermionic tube” (Bush, 1945: 108).

Indeed, the development of new information technology has been crucial to the massive accumulation and distribution of knowledge, and resources are closely correlated with participation in the new venues of information sharing. North America and Western Europe account for more than half of the global stock of digital information, according to several studies (Bounie and Gille, 2012: 1006; Gantz et al., 2007: 5; IDC 2014: 3). As shown in Figure 1, there is a strong

Corresponding author:

Charles Kurzman, Department of Sociology, University of North Carolina at Chapel Hill, CB#3210, 155 Hamilton Hall, Chapel Hill, NC 27599-3210, USA.

Email: kurzman@unc.edu

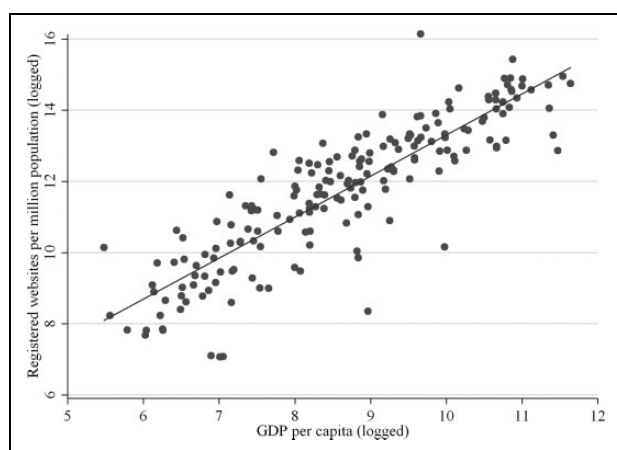


Figure 1. Logged GDP per capita and website production, 2016.

relationship between the number of IP addresses in each country (DomainTools, 2016) and per-capita gross domestic product (GDP) (World Bank, 2016).

Over the past generation, however, scholars have noted that while material factors may be necessary, they are not by themselves sufficient to explain access to digital information. Institutional factors also play a role, just as they have in earlier eras of scientific and technological advance (Briggs and Burke, 2010; Shapin and Schaffer, 2011), including contexts shaped by government agencies, technology companies, information gatekeepers, and linguistic and cultural communities (DiMaggio et al., 2004; Guillén and Suárez, 2005; Nicholas, 2003; Perkins, 1996; Savolainen, 2016; Segev, 2010). Institutions are intended here in a broad sociological sense, referring not just to formal organizations but also to legal and political regimes, as well as informal norms and conventions (Powell and DiMaggio, 1991; Scott, 2014).

A smaller body of literature focuses on inequalities of digital production. On an individual level, women are less represented than men among Wikipedia editors, for example, even controlling for Internet access and skills (Hargittai and Shaw, 2015). Older people create less online content than younger people (Brake, 2014). Educated people engage in more digital production than less-educated people (Schradie, 2011, 2012). On a global level, many of the institutional contexts identified as factors shaping Internet access may play a role in the production of digital information as well, such as government initiatives to digitize library collections and corporate investment in digital corpora. Conversely, authoritarian regimes and private interests may block or manipulate the production of digital information (Horten, 2016; Morozov, 2011).

We offer a case study of a crucial institutional mechanism for the discoverability of information:

online library catalogs. This may seem obscure, since libraries are hardly the only, or even the primary, repositories of information, especially in the digital era. Moreover, library catalogs typically provide only an index to other works, rather than the content of those works. Online library catalogs are so widespread in some parts of the world that they are taken for granted and may be considered uninteresting. But that taken-for-grantedness is a remarkable achievement that other parts of the world are still struggling to attain. In Arab countries, for example—the sites of this study—it is often unclear where material is located. In the absence of online catalogs, researchers must rely on word of mouth to identify libraries with holdings they wish to consult, then travel to each library and navigate internal procedures to access the local catalog. This process was the norm for all of humanity prior to the development of union catalogs in the early 20th century (Downs, 1942).

Two decades after Vannevar Bush's manifesto, Frederick Kilgour (1965: 147) anticipated a system offering "bibliographic services to each library by real time computer operations." In 1967, Kilgour launched the first such system, the Ohio College Library Center, billed as "a cooperative, computerized regional library center which would serve the academic libraries of Ohio (both state and private) and become part of a national electronic network for bibliographic communication" (Committee of Librarians, 1966). This network is now known by its acronym, OCLC. By the late 1980s, the OCLC's network of dedicated computer terminals was widespread enough, at least in the United States, that Kilgour could envision the goal of "100 percent availability," including "a system for retrieving information from books in machine-readable form . . . for searching from a personal computer or from some other type of access" (Kilgour, 1989: 50). This vision has inspired Google Books, the Gutenberg Project, the Hathi Trust, the Internet Archive, and countless other Internet book collections.

As of early 2017, the OCLC's online catalog, WorldCat, included 2.5 billion items in more than 16,000 member libraries in 120 countries. Yet the world's library collections are not all equally visible. There is a strong correlation between logged GDP per capita (World Bank, 2016) and the number of OCLC member libraries (OCLC, 2016a), as shown in Figure 2. (The graph transforms OCLC member libraries per million population with an inverted hyperbolic sine, which is preferable to natural log because it can handle values of zero; the correlation line is represented with Lowess smoothing.)

Of course, these figures cannot measure the hidden heritage of libraries that are not OCLC members. For

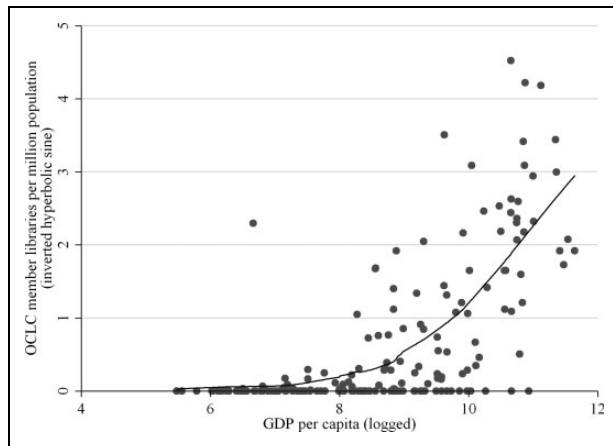


Figure 2. Logged GDP per capita and OCLC member libraries, 2016.

that, we turn to another source, with a focus on a single world region.

Arab libraries and online catalogs

Two millennia ago, Egypt was the site of the first great attempt to collect and catalog all human writings, the Great Library of Alexandria (El-Abadi, 1990; Blum, 1991). Today, there are 831 libraries in 17 Arab countries with estimated holdings of more than 50 million books, according to the 2013 edition of the *Directory of Middle East and North African Libraries* (2013). While not exhaustive, this directory serves as the most complete available listing of libraries operating as stand-alone institutions or under the umbrella of a larger cultural, governmental, or educational institution.¹ Of these libraries 70 (8%) are members of OCLC, and an unknown number of libraries participate indirectly in OCLC's Worldcat through the Arab Union Catalog, an initiative launched by the King Abdulaziz Public Library in Riyadh, Saudi Arabia, in 2006, building on interlibrary computer networks launched by the King Abdulaziz City for Science and Technology and other institutions in the 1980s (Al-Tasan, 1992; Ashoor, 1989). The Arab Union Catalog, also known as the Arabic Union Catalog, entered into a partnership with OCLC in 2011, sharing 1.4 million records with Worldcat (OCLC, 2011).

We identified URLs of libraries in the 2013 *Directory of Middle East and North African Libraries*, then used web-scraping software to access the front page and links to the online catalog, where available. Just under half of the libraries in the directory—402 of 831 libraries—had a web address, more than double the 175 library websites identified by a study published eight years earlier (Shahin, 2005). However, only 270 of the 402 library websites were active in late 2014

Table 1. Libraries and web presence in Arab countries, 2013–2015.

Country	Number of libraries	% with websites	% with online catalogs
Algeria	82	34.1	12.2
Bahrain	25	52.0	20.0
Egypt	181	16.0	7.2
Iraq	30	16.7	6.7
Jordan	40	30.0	15.0
Kuwait	25	64.0	40.0
Lebanon	53	39.6	22.6
Libya	37	5.4	0.0
Morocco	94	25.5	6.4
Oman	22	59.1	22.7
Palestine	21	52.4	28.6
Qatar	16	56.3	25.0
Saudi Arabia	37	64.9	32.4
Syria	20	40.0	10.0
Tunisia	52	5.8	1.9
United Arab Emirates	86	60.5	37.2
Yemen	10	0.0	0.0
All	831	32.5	15.2

and early 2015. Of these 270 active websites, fewer than half included an online catalog for public use—126 in total, or 15% of the libraries listed in the directory (see Table 1).²

Barriers to discoverability are not just a matter of technology and resources. In the early days of electronic cataloging, to be sure, technical barriers did exist for Arabic-language material, which had to be entered into electronic catalogs using Romanized transliterations. Software has since been developed to allow easier text entry in Arabic script, and most online library catalogs in Arab countries (62%) used Arabic script for Arabic-language metadata, with another 18% presenting both Arabic script and Romanized transliterations. Similarly, resources are correlated with the presence of online catalogs—logged GDP per capita and the percent of online library catalogs in each country have a bivariate correlation of .70—but even in the wealthy Gulf countries with the highest rates of libraries with websites and online catalogs, fewer than half of the libraries allowed public online search of their collections.

Survey of Arab librarians

What accounts for the low rate of online library catalogs in Arab countries? We conducted a survey of Arab library professionals in Fall 2014 to gauge attitudes about and experience with international collaborations, in conjunction with two professional

organizations for librarians and library educators: the Arab Federation of Libraries and Information (AFLI), which is based in Tunisia, and the Middle East Librarians Association (MELA), which is based in North America. These organizations distributed our survey recruitment message to more than 4000 listserv members and approximately 11,000 Facebook users. The online survey instrument consisted of 22 closed-ended questions and six open-ended questions in Arabic, French, and English. The response rate to this solicitation was small, with a total of 237 respondents in 12 Arab countries,³ but almost unanimous in agreement that current levels of collaboration were insufficient (98%). Among the benefits mentioned repeatedly in an associated open-ended question was greater collaboration in online catalogs, including training for librarians and changes to library procedures in keeping with global standards. Among these responses (translated from Arabic and French) were:

Breaking the digital divide and exchanging experience and information on the latest developments in the field of informatics.

Collaborative online cataloging and indexing.

Creating and playing an active role for the library in linking individuals, publics, and the institution to which they belong in the global library network.

Developing expertise in the field of collections, cataloging and classification, indexing, extraction, loan, automated library management systems, digitization.

Engaging in reliable digital library projects; training staff at a higher level of global scientific standards.

Helping develop the scientific capacity of specialists in order to create a national on-line catalog.

Increasing collaboration among libraries in several areas, such as collection development and document cataloging; making knowledge available about the rules of the digital information network.

Joining efforts to produce a unified catalog.

Standardizing libraries' technical operations.

Training in collaborative technical and technological work . . . more coordination through the use of information and communication technologies.

Training in the best IT practices and their application in the Arab context.

Unifying the efforts of libraries in technical processes and procedures related to the preparation of electronic and paper information sources to avoid duplication of efforts and waste of time on the same work . . . for example, using the latest software for digitization, electronic cataloging, etc.

A separate open-ended question asked respondents about the obstacles or challenges faced by international collaborations at their institution. Only 45 strongly motivated respondents offered their views on this sensitive topic. One-third of these respondents mentioned material factors: technical barriers such as limited Internet connectivity and incompatible software, human resource challenges such as the limited availability of information technology specialists, and financial problems that prevented investment in new systems and staff. Far more common than material factors, however, were institutional barriers, which were mentioned in all but two responses.

Several of these responses identified barriers associated with governmental institutions, such as the absence of a legal framework for international library collaboration in some countries and a lack of "political enthusiasm," as one respondent put it, championing such initiatives. Other comments were politically pointed, though brief:

Control over opinions.

Libraries do not have the freedom to act and make decisions.

The major obstacle is political will at the highest pyramid of power.

The political situation.

More commonly, the comments identified institutional barriers within their libraries. A number of respondents referred to bureaucratic intransigence. Others blamed personalistic authority: "the widespread dependence on irregular traditional systems in our libraries," in the words of one respondent. This complaint runs counter to the views expressed in a study of library technology adoption in Kuwait, which found that "staff approved of this authoritarian style and saw their own role as following instructions" (Al Fadhli et al., 2016: 9). Top library officials did not see the value of international collaboration, according to some respondents:

Lack of awareness of administrative leaders about cooperative projects.

Lack of awareness among officials of the importance of the university library and the benefits these [international] projects offer for scientific research and researchers. . . . Most library supervisors at [my university] are non-specialists.

Lack of sufficient awareness of the need to support this field in order to join the developed countries as a necessity for building an enlightened society, by increasing the qualifications, competencies, and skills of the people

in charge of digital libraries affairs, in order to establish outstanding Arab digital libraries.

Lack of understanding by the supervisory authority of the importance of this cooperation.

The majority of university library directors are conservative by virtue of their seniority and their professional experiences. They are in need of extensive training in the field of modern library techniques and software and information and communications technology, as well as the latest managerial methods.

Several respondents went further and accused library administrators of undermining international collaborations by “favoring private interests over the public interest,” as one respondent put it:

Overseas training [has been] monopolized by a certain class. . . . The first priority is for administrators, not the technical staff who were supposed to get the lion’s share [of training] in order to acquire skills and keep abreast of the latest developments.

The proposed project does not benefit specialists but administrators and officials.

Training belongs to a certain class of people.

Whether these initiatives were undervalued by administrators or commandeered by administrators, the result, according to many respondents, was that too many Arab libraries remained cut off from the global network of online catalogs:

A total absence of library participation in networked search methods.

Each country uses local standards and specifications. . . . Also, the software and systems lack many of the [international] specifications, such as metadata.

Non-application of international standards in information processing.

The majority of librarians developed their expertise through experience and practice, making them in many cases unable to keep up with the latest developments in the field.

There is no plan for cataloging and classification along international standards. . . . Specialized software is not available for information storage and retrieval in keeping with [international] standards for information exchange, such as MARC [machine-readable cataloging], etc.⁴

In a separate open-ended question, 44 survey respondents offered solutions to overcome the obstacles they had identified. Again, material factors—technology and funding—were mentioned by

relatively few respondents (6 of 44), while most focused on institutional factors, such as revised administrative procedures and greater opportunities for training.

Panel discussions with Arab librarians and library scholars

To get a deeper sense of the challenges facing Arab libraries, we convened two panels of leading library scholars and professionals from the Middle East Librarians Association (MELA), the Arab Federation for Libraries and Information (AFLI), and the Special Libraries Association - Arabian Gulf Chapter (SLA-AGC). The first panel was held in Washington, DC in November 2014, in conjunction with the MELA annual conference; the second was held in Abu Dhabi, United Arab Emirates, in March 2015, in conjunction with the SLA-AGC’s annual conference. Both panels presented this project’s preliminary findings to conference participants, and encouraged open discussion among the four panelists and the audience (45 audience members at the MELA conference and 70 at the SLA-AGC conference). We took detailed notes during these panels and later organized these notes by theme.

These discussions, along with follow-up conversations, identified three institutional factors that may be particularly significant factors in the hidden heritage of Arab libraries.

Oil wealth and libraries

The participants in these panels were all experienced library professionals. They knew how library budgets worked, and they identified the overarching context for every decision in Arab libraries as the degree of access to oil wealth. Libraries in the oil-rich countries could invest in new technologies and the personnel needed to run them, while libraries in less-wealthy countries had little budgetary discretion. The timing of oil wealth, and the locations where it happened to sprout, meant that libraries in oil-rich countries were more likely to be new, with facilities that were custom-built for computers and Internet connections and collections that were acquired and catalogued in the digital age.

By contrast, the oldest and largest libraries in the region, whose collections were most in need of electronic cataloging, were in countries with less oil wealth. Major projects to upgrade the catalogs in less-wealthy countries often involve foreign funding. For example, the National Library of Egypt, which may have the largest collection of any Arab library, has partnered with institutions in the United States, Europe, and the United Arab Emirates to catalog and

digitize portions of its manuscript collection (Ghali, 2016: 314–315).

Libraries in the least well-off countries in the region—civil war zones such as Libya, Syria, and Yemen—faced challenges in maintaining basic operations, much less upgrading their technology. (Our survey received two responses from librarians in Yemen and none from Libya or Syria.)

Oil wealth has led to labor migration among librarians, as with educated Arab professionals overall (Hassan, 2010: 70–72; Richards and Martin, 1983: 462). Many of the libraries in newly wealthy countries, which had few trained librarians of their own, were established by librarians from less-wealthy Arab countries, as were the library and information science programs established to train local specialists. A significant portion of library staff in these countries still consists of expatriate Arabs, whose status as non-citizens leaves them less able to push for access and discoverability.

However, the panelists emphasized that material conditions were not the only factors at work. Wealthy Arab countries displayed differing levels of interest in participating in global library networks. The Qatar National Library, for example, partnered with the British Library to create the Qatar Digital Library, with the mission of “making a vast archive featuring the cultural and historical heritage of the Gulf and wider region freely available online for the first time” (Qatar Digital Library, n.d.). Other libraries in wealthy countries, by contrast, seemed less eager to share information about their holdings. One archival institution, which will go nameless, would not divulge whether it even maintained a catalog for internal purposes.

In addition, there are important library initiatives outside of the wealthiest countries. One such initiative is Egypt’s construction of a new Bibliotheca Alexandrina, which describes itself as “a leading institution of the digital age” that aspires “to recapture the spirit of the original ancient Library of Alexandria” (Bibliotheca Alexandrina, n.d.). From its striking architecture to its state-of-the-art optical character recognition (OCR) procedures, the Bibliotheca Alexandrina became a leader in Arab information science within a decade of its establishment in 2002. It is one of the few libraries in the region that not only has its catalog online, but also links to full-text images of materials from its collection that are in the public domain.

Library leadership

In addition to material factors, the panelists expressed concern about unevenness in the selection and

performance of library leadership in Arab countries. Too many library leaders are political appointees who lack library training, they said. One participant said that almost all of the library directors in his country fell into this category, including himself—he at least was an academic researcher in a field related to librarianship, he pointed out. Some library directors are retired military officers with little familiarity with libraries (Khalifa, 2012: 215). In the United States, by contrast, library directors are usually appointed from within the ranks of professional librarians (Harris-Keith, 2015, 2016; Jordan, 2012: 40). At many libraries, participants said, leadership positions are often replaced too frequently to engage in long-term institution-building. The resulting lack of continuity can demoralize library staff and make it difficult for strategic initiatives to be developed, approved, and seen through to completion.

In keeping with the survey comments about library leaders who seem to favor private interests over public interests, one panel participant gave the example of a library administrator who appeared to view the library’s holdings as his personal collection, removing items for personal use with no record of having checked them out. According to colleagues, this administrator did not expect to be in his position for long and sought to make the most of his time in office. This sort of irresponsibility is extreme, and not representative of all library leaders in Arab countries, but it highlights the uneven qualifications of library leaders in the region.

Aside from occasional ethical deficiencies, the leadership at most Arab libraries is of a generation trained prior to the development of computerized library catalogs in the region. Like transitional generations of librarians elsewhere in the world (for example, Farooq et al., 2016; Yadav and Gohain, 2016), they have had to upgrade their own technical skills at the same time as they upgrade those of their organizations. Several participants admitted that they could still use additional continuing education on these subjects, although they noted that their computer competence was greater than some of their senior library colleagues who still did not use email. As a result of this transition, library leaders in Arab countries are in the difficult position of building systems that they are not particularly familiar with themselves.

According to participants, the leaders of Arab libraries have had to rely to a great degree on outside vendors to supply technological systems. This market has been dominated from the early years of library computerization in the region by Arabian Advanced Systems, a Saudi Arabian company founded in 1989. By 2003, AAS—now called Naseej—had a 73% market share in library automation in the region

(Khurshid, 2003). Naseej offers full-service packages for libraries including cataloging, search, and discovery software, as well as technical support, training for librarians, and other services, in addition to a non-profit subsidiary, the Naseej Academy, that offers workshops and continuing education for library leaders in the Arab region. Because of its market position, Naseej has played an even greater role in the promotion of computerized catalogs in Arab countries than the role played by specialized library technology companies in the West—in fact, Naseej has held the regional license for several of those companies.

Like Frederick Kilgore in Ohio, Naseej's founder, Abduljabbar al-Abduljabbar, envisioned and built region-wide computerized library systems. But Naseej is a commercial vendor, and there is no region-wide library association in Arab countries that engages in institutional collaborations along the lines of Kilgore's consortium model. Panel participants bemoaned the lack of interaction, much less cooperation, among the region's national library associations, some of which were more active than others. The region has two large library associations—the Arab Federation of Libraries and Information and the Special Libraries Association (Arab Gulf Chapter)—and some libraries in the region participate with international partners through the OCLC, the Arab Union Catalog, the Middle East Librarians Association (in North America), the European Association of Middle East Librarians, and the International Federation of Library Associations and Institutions. However, these groups have engaged in only limited collaboration with one another, and there has been no attempt to recruit libraries systematically throughout the region.

Preservation over access

For some libraries, the mission of preservation is a higher priority than the mission of accessibility, according to several participants. Participants also suggested that there is reluctance in some libraries to share information on their collections, out of concern that identifying these works publicly may expose them to theft, government seizure, or destruction. Material on sensitive topics, for example, may be withheld from catalogs that could draw unwanted attention from extremists or government officials.

Preservation is on librarians' minds in part because of tragic recent instances of the destruction of library and museum collections during civil conflicts in Iraq, Syria, and elsewhere in the region. More broadly, some Arab librarians do not entirely trust their patrons. In Morocco, for example:

[T]he most common word used for library in Arabic, *khazana*, has a meaning akin to a safe with its root verb meaning to store or safe-keep The internalization of this meaning has been reflected in the mentality in many Moroccan libraries up to now where keeping books 'safe' has often resulted in library policies that limit or inadvertently discourage patron access to collections, for example by not allowing patrons to remove books from the library or having very stringent borrowing policies. (Ahmed, 2016:41)

Many libraries in the region limit access to materials, operating with closed stacks or only allowing supervised access, with strict borrowing policies. Similar restrictions have existed in other countries, including Nicaragua, where librarians could not afford to replace material that went missing (Lepkowski, 1992); Nigeria, where librarians worried that patrons would damage books (Adewoye, 1992); and Turkey, where for decades librarians were held personally responsible for the cost of lost or stolen books (Kurosman, 1980: 176). Almost no libraries in the region participate in interlibrary borrowing, despite plans that date back to the 1980s (Khalid, 1996; Rehman, 1989; Siddiqui, 1996).

The emphasis on maintaining materials in a safe physical space may extend to concern over distribution of metadata and digital images beyond the walls of the library. Participants said that some library administrators may be hesitant to put their catalogs online because they consider the cataloging metadata to be proprietary. In addition, they said, some librarians worry that digitization degrades the value of the library's physical collection. This concern echoes the assessment of a researcher studying the digitization of manuscript holdings in Egypt:

One serious challenge is the resistance from curators and managers who are in charge of some manuscripts libraries or collections. They do not trust technology and digitization in particular. One of their major contentions with digitization is that there is a great possibility for forging a digital copy of a manuscript which might lead to fabricating part of Muslim history. Another reason to reject digitization projects, from their point of view, is the ownership and copyright issues of these manuscripts especially when it goes online and can be easily downloaded. (Ghali, 2016: 313–314)

From this perspective, safekeeping heritage requires keeping it hidden.

Conclusion

In the early 1950s, an overview of "library consciousness" in the Middle East identified some of the

same institutional challenges that our research discovered in the 2010s: a lack of coordination among libraries, limited opportunities for professional training, outdated methods of administration, few policies for loaning materials, and so little public information that in many libraries, “no one knows or has any means of ascertaining how much money is spent for library purposes, how many volumes are in the collections, or even the number of employees engaged in library service” (Thompson, 1954: 160–161). This may have been an unfair assessment—at least the comment about the number of volumes in each collection. A survey of 131 libraries in Arab countries in the late 1940s found that two-thirds had card catalogs that would presumably have allowed an accounting of collection size (Dagher, 1951). Nonetheless, an overview of Middle East libraries several years later identified several similar institutional barriers, including “unsatisfactory” bibliographic standards and a lack of coordination among libraries, plus an emphasis on preservation that “is inhibiting the advance toward a more dynamic concept of a library’s *raison d’être* in keeping with the needs of contemporary society” (Holloway, 1959: 198, 206). A similar review in the 1980s concluded that the Middle East’s “centuries-old tradition of library development tends to delay modernization of services, technology, and techniques” (Krzys et al., 1983: 105).

The persistence of such challenges over more than half a century may tempt some to invoke cultural explanations unique to the Arab region. However, the field of international and comparative librarianship has identified similar challenges in many cultural contexts. In any case, cultural explanations tend toward homogenizing essentialism. We have adopted the phrase “institutional barriers” to focus more narrowly on the challenges to discoverability at many Arab libraries.

The main finding of this study is that institutional barriers may persist even in the absence of resource and technological restraints, as in some of the wealthy Arab countries. Conversely, institutional commitment may overcome resource restraints. The correlation between material factors and institutional outcomes is not perfect.

Discoverability of the hidden heritage of Arab libraries depends also on the practices of library leaders. Through a survey of Arab librarians, we found unmet demand for online cataloging and other forms of international library collaboration. Such collaboration, respondents indicated, was too often thwarted by institutional factors, including inhospitable political institutions external to the library or a lack of commitment by library leaders. Several respondents even

accused library leaders of undermining initiatives by monopolizing training opportunities and in effect privatizing resources that were intended to upgrade library services. Many respondents expressed frustration with their libraries’ lack of participation in international networks.

Further discussion of these issues with two expert panels identified three possible causes for institutional barriers in Arab libraries. One involved inequalities of oil wealth, affecting the labor market for library professionals. In the countries with the most resources to devote to state-of-the-art libraries, the senior cohort of librarians is composed primarily of Arab expatriates who lack the status of citizens to push for information openness. A second factor involved the uneven qualifications and terms of office of library leaders, hampering long-term investments in technical infrastructure and technically proficient staff. A third factor involved concern that discoverability of library materials might make them vulnerable to loss or theft, leading some librarians to prioritize preservation over access.

These institutional barriers to discoverability may be frustrating to librarians and library users who expect greater commitment to information access in the digital age, but the challenges are not easily overcome. If they were, more than 15% of Arab libraries would have online catalogs.

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ORCID iD

John D. Martin III  <http://orcid.org/0000-0001-5108-4679>

Notes

1. Country totals in the directory are correlated at the .62 level ($p < .01$) with the OCLC’s estimates of the number

- of academic and national libraries in each country (OCLC, 2016b).
- A study of libraries in Egypt reported somewhat higher numbers—42 libraries with websites, including 24 with online catalogs (Khalifa, 2012: 204–205)—as compared with our totals of 29 and 13, respectively.
 - Survey respondents were from Algeria, Egypt, Iraq, Jordan, Lebanon, Morocco, Palestine, Qatar, Saudi Arabia, Tunisia, United Arab Emirates, and Yemen. Further information on the survey may be found in a preliminary working paper from this project (Kurzman et al., 2015). The full survey instrument is also available at the project website: <http://melib.web.unc.edu>.
 - Consistent with this comment, our review of online catalogs at Arab libraries found only one-third (46 out of 126) using MARC standards.

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Author biographies

Charles Kurzman is a Professor of Sociology at the University of North Carolina at Chapel Hill and co-director of the Carolina Center for the Study of the Middle East and

Muslim Civilizations. He is author of *The Missing Martyrs* (2011; updated edition scheduled for release in Fall 2018), *Democracy Denied, 1905–1915* (2008), and *The Unthinkable Revolution in Iran* (2004), and editor of the anthologies *Liberal Islam* (1998) and *Modernist Islam, 1840–1940* (2002).

John D. Martin III is a doctoral candidate in the School of Information and Library Science at the University of North Carolina at Chapel Hill. He is co-editor of the anthology *Library and Information Science in the Middle East and North Africa* (2016). His research focuses on trust and credibility in interfaces, systems, and platforms that facilitate information exchange and transfer between people. He has an academic background in Arabic and Islamic studies and a working background in libraries, archives, and museums in Cairo, Egypt.