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Strategies for checking misinformation: An approach from the Global South

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Abstract
The manipulation of information to suit one's vested interests is a growing hazard. It has elements of disinformation, misinformation and fake news, and lacks authenticity. Such manipulation and distortion of facts can have serious consequences for a community, especially in a diverse nation like India. It calls for strict measures and awareness to check this spread. Technology further catalyses such dissemination. Institutions, libraries, governments and the media are all deliberating effective means to distinguish fake news from authentic news. This article details some such initiatives. It discusses the Government of India's Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, to curb such deceitful dissemination, elements of which can be replicable in other geographies. It spotlights the issue and underscores the need for media and information literacy for all to be more discerning during the reception, consumption and assimilation of information before responding to it. Further, the fact-checking initiatives and Information Technology Rules as taken and framed in India may be replicated in other countries.

Keywords
Manipulation, information technology, fake news, digital media, information literacy, misinformation, disinformation, India

Introduction

The United Nations' Sustainable Development Goals aim for a better, fairer society by 2030 by eliminating poverty and inequality. To achieve these aims, society needs relevant and authentic information. The Internet and social media have enabled easy accessibility and affordability in terms of information creation, circulation and consumption at lightning speed. With the click of a button, contents, videos and pictures can be broadcast globally. This very power, speed and reach of technology becomes corrosive and hazardous when used maliciously with bias and prejudice.

The media is replete with instances of vested interests curbing the flow of right information. Of many, one such instance was when, during the COVID-19 lockdown, rumours were circulating on the Web attributing the spread of the virus to exposure to radio emissions from new 5G antennas (Martin, 2020). Even the recent farmers' protests in India have seen several rumours about the state and its use of force to quell the situation, which fortunately were proved baseless (Menon, 2020). Circulating information without checking its veracity can snowball into public unrest and endanger law and order. The viral spread of information, also referred to as 'digital wildfires', may cause irreversible damage to life and property, and erode the social fabric of society.

The media has a lot of power, which can be revolutionary if used responsibly. Unfortunately, such responsibility is open to manipulation, and instances of the same seem to be on the rise of late. A few social media have been found to be using their power for divisive purposes and have been penalized for circulating wrong information. Social media has been used to spread inflammatory speeches and videos,

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prompting the naive to violence or unwanted behaviour. In the context of health, misleading information can set back government efforts. With the ever-growing speed and reach of social/digital media, it is very difficult to control the damage caused once misinformation or disinformation has been circulated among the masses. In light of this, it becomes imperative for policymakers to step in and ensure proper checks and balances are in place to curb any such misuse.

With the omnipresent Internet, the misleading information circulates more rapidly. This is particularly pertinent for a country like India, where there are 696.77 million Internet users; estimates say that this number will increase to 974.86 million users by 2025. Rural India has 227 million active users, 10% more than urban India's 205 million. Further, 71 million children aged between 5 and 11 also go online using adults' devices. There are 18.9 million, 340 million and 346.2 million Indians on Twitter, WhatsApp and Facebook, respectively (Statista, n.d.). Netizens are a growing sector across the globe.

In the light of the above, this article considers the relevance of media and information literacy for all to understand and practice. The people should exercise their media and information literacy skills while using content available on social media or generating their own content and sharing with others. It underscores that the downsides of social media in the form of misinformation, disinformation and fake news can be stemmed through media and information literacy competencies. Media and information literacy entails having the skills and competencies to identify, evaluate and scrutinize different types of media, and understand the contents that are published. These competencies enable individuals to create content and be prudent purveyors of information. The study also surveyed a number of library and information science (LIS) educators in India to find out what they do to sensitize their students and spread awareness to stem the rising tide of fake news, misinformation and disinformation. LIS educators have conducted webinars to spread awareness among students and laypersons. They teach how to differentiate between fake and genuine news, and how to evaluate information for accuracy before using it for decision-making or sharing with others.

This article conveys the message that everyone (tweens, teenagers and adults) needs to be media and information literate. It advocates that the syllabi at all levels of education, from school to doctoral, should incorporate the components of media and information literacy. Academic and public libraries should hold awareness sessions to sensitize their users to the importance of being media and information literate.

Literature review

With the easy availability of social media, any information can be communicated to millions of people in no time. If the information is positive or accurate, it may help millions. For instance, if someone has a problem, they may seek help, or information about an imminent earthquake, cyclone or natural disaster may be shared. But misinformation generated with malfeasance may spread like wildfire, harming people, sabotaging social peace and harmony, and endangering law and order in a country. The current flow of fake news and propaganda fools too many people, as social media tries to control the flow of misleading information.

Tandoc et al. (2020) surveyed 2501 respondents and interviewed 20 participants from Singapore's technologically advanced city state. They ignored fake news posts which they found on social media, and tried to correct fake items directly relating to them and their close acquaintances. Misinformation has caused widespread alarm. It has been reported that people were exposed to false stories prior to the 2016 presidential election in the USA, which they believed to be true. Following this, Facebook and Twitter realigned their algorithms and policies to check the spread of false content (Meserole, 2018).

Examining and commenting on the veracity of statements made by 22 social media forums concerning drugs, dietary supplements and toxic bisphenol, Al Khaja et al. (2018) categorized them as 'objectively true', 'false' or 'potentially misleading'. Surprisingly, 59.1% of the messages circulated about drugs were found to be 'potentially misleading'. Just 13.6% of the messages passed regulatory scrutiny. Al Khaja et al. conclude that the majority of the drug-related content was deceptive or totally false, and did not have evidence to substantiate it. Wang et al. (2019) have also observed that social media has heavily propagated misinformation related to health.

Colliander (2019) observes a similarity in how individuals respond to fake news. When they find that others have commented critically on a piece of fake news, they are less inclined to make positive comments and share it further among their contacts. Additionally, disclaimers from social media platforms do not help as much as comments from other users. In Allcott et al.'s (2019) study of trends in the dissemination of content from 569 fake news websites and 9540 fake news stories on Facebook and Twitter, users' interaction with false content increased continuously until the end of 2016, but fell thereafter.

The media plays a crucial role in shaping adolescents– the physical, cognitive, moral, psychological and socio-emotional dimensions of their personalities. They get their role models, sense of right and wrong, or of desirable or otherwise, from what is presented to them via various media forums. The media very often shapes concepts of heroism, beauty, status and success. Students must be well equipped with the competencies to live in, contribute to and thrive in the Digital milieu where they are logged in globally every minute of the day. So, to promote critical engagement with media content, it is essential to advocate and encourage media and information literacy. If we want children to navigate and make use of social media platforms judiciously, they should be well skilled in deciphering what is served to them or, at times, floats freely to them on these forums. Moreover, they should have the discretion and maturity to see through content and evaluate it. This requires a discerning eye. Media and information literacy is the ability to access, analyse, evaluate and create content.

Media and information literacy encompasses the skills and competencies required to read, write and comprehend print, non-print, audio and video content; navigate the Internet and social media platforms; and generate one's own content responsibly and judiciously for further dissemination and sharing. In modern information ecosystems, citizens should be well trained in processing the news that reaches them, including how they read, process and respond to it. According to UNESCO's definition of media and information literacy, it is the ability to reach the right judgements with proper deciphering of advertisements (UNESCO, 2013). Further, people should know how to process information/media messages constructively for further use. This can be for creating more pieces based on the same content. While creating, consuming or producing messages or content for the media, media and information literacy acts as a gatekeeper against disinformation, stereotypes and intolerance. In December 2008, the European Parliament passed a resolution mandating the incorporation of media literacy in teacher training at all school levels (European Parliament, 2008). The media has strengthened and buttressed the participation of consumers of media content in the shape of comments, debates and more.

There was a lot of misinformation being circulated as the COVID-19 pandemic broke out and at the time of the 2016 US election. Twitter has introduced labels and warning messages to alert netizens about the veracity of contents or posts. Studies indicate that misinformation spreads much faster on social media. The important areas of public health and social peace and harmony have seen fakery wreak havoc. Netizens need to be careful when retweeting manipulated media on Twitter and refrain from mindlessly forwarding suspicious WhatsApp messages and Facebook posts. The importance of one's accountability for online posts is yet to sink in.

Facebook has devised advertising policies to prevent misuse of platform for dissemination of information pertaining to illegal products, unsafe substances and discriminatory practices (Facebook, nd). Instagram, which is owned by Facebook, has identified the hashtags that are frequently used in posts sharing false or misleading information. Another move redirected those looking for information on COVID-19 to a particular message, providing links to verified and authoritative information sources.

Recently, Wikipedia has published pages describing the menace of fake news in India, titled 'Fake news in India' (Wikipedia, 2021a) and 'Indian WhatsApp lynchings' (Wikipedia, 2022a). There are also other Wikipedia pages that describe the menace and consequences of fake news on the subcontinent, titled 'Misinformation related to the COVID-19 pandemic' (Wikipedia, 2022b) and 'COVID-19 pandemic in India' (Wikipedia, 2021b).

Fake news, misinformation and disinformation

The terms 'fake news', 'misinformation' and 'disinformation' are used interchangeably, overlapping in meaning and content. The issue of fake news has existed for a long time. In 1835, the *Sun* newspaper published that there was life on the moon, which became known as the Great Moon Hoax (Vida, 2012). The pernicious effects of fake news are again under the spotlight as fake news has increased during the coronavirus pandemic and the 2020 US presidential election (Pennycook and Rand, 2021).

Fake news is fabricated, falsified or false news with the trappings of real news media content. However, such news does not pass through rigorous editorial vetting for the veracity, authenticity, accuracy, currency and credibility of the content that it claims to convey. It is projected to be genuine to spread falsehoods and dupe or mislead people, arouse passions and attract viewership. It has gained attention in the contexts of politics, health, vaccinations and climate change. The spread of fake news is pernicious for everyone. Further, it thrives in standard news outlets and threatens their credibility (Lazer et al., 2018).

The difference between misinformation and disinformation hinges on whether the false or illegitimate information is purposefully disseminated to delude people or not. Disinformation may be textual, visual or gestural. This also means that disinformation is purposefully or wilfully misleading. The feature of misleading recipients is deliberate, not accidental or by chance. Lazer et al. (2018) state that information is alethically neutral and should not be evaluative of truth.

Fetzer (2004) has emphasized that information is meaningful data that is independent of truth; the receiver adds context and sense, and misrepresentation or misinformation occurs in the process. Thus, information is the genuine part of the semantic content, whereas misinformation is its false part. Disinformation is the part of misinformation that has been orchestrated to deceive the information receiver. The easy and fast dissemination of information, distortion and manipulation happen because of the rapid development of information and communications technologies and their easy availability. Social media has enabled the public consumption of information. People quickly forward and share information without challenging it. Research has highlighted that a large number of people retweet false information. Further, social bots share information and thus catalyse the spread of fake news, misinformation and disinformation (Ndlela, 2020). Misinformation alludes to wrong and misleading information, while disinformation is orchestrated to deceive the information receiver.

Prakash Javdekar, former Indian Minister of Information and Broadcasting, said on 27 August 2020 on Twitter that

> Fake news has a potent power of disturbing peace. Manipulation of public opinion over social media platforms has emerged as a critical threat to public life. Fake news campaigns across the world are because of lack of targeted legislation, lack of media literacy and awareness. Disinformation aims to weaken the basic structure of a functioning democracy. Universe of fake news is much larger than simply fake news stories. Fake news is more potent and dangerous. (PIB India, 2020).

Fake news mainly includes fabricated stories on the Internet posing as real news. It also encompasses any misleading or manipulative content that is false, a half-truth or tweaked to suit vested interests. Even satire that is deliberately worded to appear like news is fake news.

A study by the Stanford Education Group highlights the struggles that middle school, high school and college students have as they try to understand and evaluate the information available on the Internet. Inauthentic pieces in the guise of real news are highly likely to mislead them (Donald, 2016). Fake news, with its elements of misrepresentation, manipulation and the tweaking of facts, eats into the democratic values of modern-day society. Not only that, it curtails the free and timely availability of authentic information, which can be used to make further decisions. These fake news pieces border on a visceral appeal to raw emotions rather than being an objective representation of news, facts and developments, and often goad people into wrong actions through processes of hatred, bigotry and negativity, thus serving the subversive purpose of their creators. Along similar lines, the German concept of *postfaktisch* refers to manipulating political and social narratives to rouse emotions rather than an objective and logical thought process (Bluemle, 2018). Sadly, this is a universal phenomenon, and even the most discerning minds can be deceived.

Media literacy can be described as the clutch of literacy skills that are relevant to the present ecosystem of overflowing information in diverse forms and models. It enables media consumers to use news objectively, without getting distracted by deliberate yet subtle appeals to the emotions, and to respond appropriately.

Media literacy for the 21st century

Tracing the beginnings of media, it goes back to the first half of the 20th century. Frank and Thompson (1933) suggested that students be taught to develop a discerning eye to appreciate the differences between high and popular culture in the UK. The 1950s witnessed the introduction of media literacy in the USA, recognizing the growing influence of mass media on people's behaviour. The Internet opened a new chapter, serving as a milestone in the development of media literacy because it radically changed the texture of the media space. With rapid and drastic changes, and the quantum leaps made by technology, traditional literature appeared to become obsolete, and hence meaningless and irrelevant to the changing times.

Considering the emerging situation with reference to media and information technology (IT), and the inextricability of media in human lives, it becomes all the more crucial that people have a certain level of media literacy to help them navigate the world of words, messages, information, videos and audio materials better and more objectively, rather than being deceived by half-truths and twisted facts.

Figure 1. The importance of media literacy for tackling misinformation in India.

Information flows across borders and is accessed by a vast consumer base. Many of these consumers have impressionable minds - that is, young people. It is thus imperative that they learn to look at any information objectively and critically, and media literacy needs to be part of the modern-day curriculum. Further, it has already been in Library and Information Science, and Journalism courses in higher education institutions.

Educated people are less likely to believe in conspiracy theories because of multiple psychological factors related to education. Conspiracy theories have consequences as they affect people's health and safety, are universal and spread across societies and cultural settings, and are associated with the negative emotions and psychological motivations underlying intergroup conflict (Van Prooijen and Douglas, 2018). Other terms for conspiracy theories include 'conspiracy predispositions', 'conspiracy ideation', 'conspiracy ideology', 'conspiracy mentality' and 'conspiracy world view'.

News and information are often seen through the lenses of emotions and feelings, with an appeal to sentiments rather than objectivity. And this is where educators need to step in and rectify the situation. Rationality, authenticity, facts and transparency should be the basic parameters rather than biases, prejudices, superstitions and similar elements that appear to be low in logic. Objectivity is lost if facts become coloured by irrationality, prejudices, biases, bigotry, and individual whims and fancies. With regard to media manipulation for unethical interests, the vested interests of a handful of people, the exponential reach and the comfort of anonymity that comes with social media seem to be the key factors. A low level of media literacy, coupled with the naivety of the masses, makes people more vulnerable to such designs and manipulations. People need to be more discerning, rather than taking everything at face value.

The Pew Research Center has reported that almost 23% of American adults admitted to spreading misinformation via social media. Sometimes it was unintentional, but often it was not (Barthel et al., 2016). Under the seemingly safe cover of anonymity and invisibility, online disinhibition can easily lead one to post comments; with no humane consideration or mindfulness of the ripple effects of the dissemination of misinformation. Such anonymity may give way to Asperger's syndrome.

User-generated comments are a growing feature of social media. The comments sections beneath news articles or embedded in social media provide users with unique opportunities to share their views. Research has shown that exposure to uncivil comments may have various detrimental effects on readers. It may result in a biased perception of the news content, but explicit references of the moderation done can mitigate such an adverse effect (Yeo et al., 2019). As for forums, it has been often noted that they 'play possum' when convenient. Popular platforms such as Facebook, YouTube and Twitter have disappointed on several occasions, and the ill-intentioned have used them to further their motives, as social media has become the preferred platform for several subversive agendas– and there are no signs of this subsiding anytime soon.

Trollers seem to be self-appointed monitors of society, using technology and social media to advance their designs. It can range from simple comments without considering others' sentiments to outrageous material that can trigger a lot more, and worse. Another emerging nuisance is online fraud– fraudsters using online forums to financially cheat their targets. Financial institutions have made it a routine procedure to tell their clients not to share personal information over the phone or e-media. Sadly, this is just the tip of the iceberg.

An example of the damage caused by fake news in India can be seen during the difficult times of COVID-19 in 2020 when fake news triggered a mass exodus of migrants from the cities to their native places. The Supreme Court of India directed the media to publish government figures on the COVID-19 pandemic crisis. The Supreme Court promptly stepped in, asking the government authorities to set up a portal to disseminate real-time information pertaining to the pandemic and counter the panic that was being spread through fake news. The central government asked all states and union territories to deploy mechanisms to prevent the dissemination of unverified and fake news (*Hindustan Times*, 2020).

The Supreme Court directed electronic, print and social media platforms to ensure that the unverified and misleading news that may cause any disturbance or unfounded fear in the public is not disseminated (Rautray, 2020). The free flow of ideas and information is a precondition for any democracy to flourish. This requires a free media that can function without fear or favour, with the government providing only a regulatory framework. Fake news poses a serious challenge as it misleads the public, which consumes the information; creates a problem for the government and dents media credibility. It also compels the government to interfere with the functioning of the press. Further, it dilutes the support and goodwill that are, at times, needed for development and progress.

The media, once said to be the watchdog of democracy, cannot be allowed to fall into the hands of evil minds, holding at ransom the safety of millions for no fault of their own. In such a scenario, it becomes rational and imperative to watch out for miscreants, misuse and manipulation with proper control and supervision by the state. We need policies, checks and balances to keep this misuse at bay. People fall prey to fake news, misinformation and disinformation because they lack digital media literacy skills and contextual knowledge to differentiate between high-quality and low-quality content. Education and training in digital literacy may improve discernment with regard to mainstream content and fake news (Guess et al., 2020).

Indian initiatives in countering fake news and disinformation

Fake news and disinformation have become common challenges for the educated citizen who is keen to distinguish fake news from authentic news. The Union Government and media houses in India are also making attempts to decipher real facts from fake ones. Table 1 shows some of the initiatives that are being undertaken by Indian agencies and media houses to combat the menace of fake news– for example, the India Today Group runs the India Today Anti Fake News War Room, with the hashtag #AFWAFactCheck, and fact-checking initiatives are being undertaken by the leading media houses, such as the *Times of India*'s @TimesFactCheck and The Quint's #WebQoof. Most of the non-governmental fact-checking initiatives, as described in Table 1, are certified by the International Fact-Checking Network (IFCN) and Facebook partners in fact-checking in the country.

As shown in Table 1, the most popular fact-checking initiative is @AltNews, a non-governmental initiative; 358,300 Twitter users follow this handle. It also

Table 1. Indian initiatives for fact-checking and countering fake news online.

Name	Twitter handle	Verified account	Tagline/areas of interest	Number of followers on Twitter	Type of managing agency
Alt News	@AltNews @AltNewsHindi	Yes	'Alternative News and Views in the Post-Truth World'	358,300	Non-government
Cyber Dost	@Cyberdost	Yes	Cyber-safety and cybersecurity awareness	329,900	Government
PIB Fact Check	@PIBFactCheck	Yes	Countering misinformation on government policies and schemes	229,800	Government
BOOM Live	@boomlive_in	Yes	'[F]act-driven journalism. India's first independent online resource to fight misinformation, explain issues and keep the internet safe'	74,000	Non-government
SM Hoax Slayer	@SMHoaxSlayer	Yes	'India's Fastest, Oldest & Largest fact checker', providing proof of fake news or social media hoaxes 'brainwashing people'	68,000	Non-government
FactChecker.in	@FactCheckIndia	Yes	'India's first dedicated fact-checking initiative. We verify statements and other claims made by those in public life'	60,600	Non-government
Times Fact Check	@TimesFactCheck	Yes	'A @timesinternet initiative to check fake news. Non-partisan. Fact-driven'	21,500	Non-government
India Vs Disinformation	@IndiavsDisinfo	No	'India Vs Disinformation: truth matters'	20,500	Non-government
NewsMobile	@NewsMobileIndia	Yes	'[A] fact checked mobile news and content platform [that] busts fake news . . . a signatory to IFCN code of principles'	16,600	Non-government
WebQoof	@QuintFactCheck	Yes	'WebQoof– A person who believes everything they read or see on the Internet. Don't be a #WebQoof'	15,000	Non-government
Alt News Science	@AltNewsScience	Yes	'Fact-checking science & health misinformation'	10,900	Non-government
Factly	@FactlyIndia	Yes	'Well known Public Information & Fact-Checking Initiative. Signatory of the IFCN Code of Principles'	4400	Non-government
Vishvas.News	@newsvishvas	Yes	'[A] premier Hindi fact checking website that is committed to debunking misinformation, disinformation and mal-information'	3400	Non-government
Fact Crescendo	@FactCrescendo(also in Assamese, Bangla, Tamil, Malayalam, Marathi, Gujarati and Odia)	Yes	'An unbiased fact-checking website that committed to bringing the fact behind every news, debunking Misinformation'	1800	Non-government
Logically India	@LogicallyIN	Yes	Fighting misinformation with technology, fact-checking, journalism and integrity	500	Non-government

Source: Compiled by the authors, 28 July 2021.

maintains an Indian-language handle to fact-check misinformation in Hindi (@AltNewsHindi) and a specialized handle to fact-check science and health-related misinformation (@AltNewsScience).

With the enormous impact and consequences of fake news in India in recent times, the Government of India has implemented several countermeasures and media strategies to tackle the spread of fake news at its roots. As shown in Table 1, the second most popular fact-checking initiative is Cyber Dost (@Cyberdost), which was launched in January 2019 to spread awareness of cybercrimes. Cyber Dost is also an attempt to impart information and media literacy related to cyber-safety and cybersecurity; 329,900 Twitter users follow this handle.

A further initiative was the establishment of the PIB Fact Check unit under the aegis of the Press Information Bureau of the Ministry of Information and Broadcasting in November 2019. The unit works along the four principles of find, assess, create and target (FACT) to fight fake news effectively. By order of the Supreme Court of India in April 2020, Indian states were directed by the Union Government to take adequate measures to fight fake news and prevent COVID-19 pandemic-related panic among citizens.

As illustrated in Table 1, information and media educators in India are now equipped with effective tools and platforms for unbiased fact-checking and strongly opposing unverified, malicious social media comments containing rumours that are designed to cause social disharmony. Further, we need committed and vigilant information and media professionals to educate ordinary citizens about the dangers of misinformation and disinformation. They should also support an influential community leader in each locality to debunk false news affecting local communities. Fact-checked information, available from these fact-checking initiatives, should be shared with other social media and instant messaging platforms, such as WhatsApp, Facebook Messenger and Telegram, by information and media educators, and social influencers.

As shown in Figure 1, information and media literacy plays a critical role in debunking fake news, disinformation and misinformation at the community level. Thus, the Press Information Bureau and other agencies have been arguing for the creation of a larger platform to encourage media literacy and how to spot fake news. Covishaala is a programme that was started by the fact-checking agencies Logically and NewsMobile to educate and inform the public across India about the facts of COVID-19 and vaccination in order to overcome unfounded fears of vaccination and control the spread of the virus (Economic Times, 2021).[1] There have also been instances of WhatsApp and the National Association of Software and Service Companies collaborating to offer education and training on digital literacy to make people aware of fake news on social media (India Today, 2019).

Government policies to combat fake news, misinformation and disinformation

With the huge advances made by technology, social media is inextricably integrated in the lives of a vast segment of the population in India. The country has some 530 million WhatsApp users, followed by YouTube with 44.8 million, Facebook with around 411 million and Instagram with 210 million (Chakravarti, 2021). In contrast, Twitter has a more modest 17.5 million users, indicating the natural inclination towards verbosity. However, even short statements can lead to full-blown conflict, as evidenced by a recent incident where the forum was the media used and violence was triggered.

Given such a massive user base, the speed at which news travels and its potential to cause harm if misused, it is imperative to police the social media well. The recently announced Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, are a step in this direction (PRS Legislative Research, 2021).

The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 – highlights

The Information Technology Rules were notified in February 2021 under the Information Technology Act 2000. The Rules, which came into force on 26 May 2021, are fairly comprehensive and take into account most of the issues that have created challenges stemming from social media and digital platforms. They address issues pertaining to the origin of a source and the objective redressal of grievances, leaving no room for irresponsible or unaccountable attitudes among social media forums, digital platforms, news producers and television companies (PRS Legislative Research, 2021).

The Rules empowers consumers of social media platforms and over-the-top platforms by making it mandatory for them to have an India-residing grievance redressal officer to look into their grievances. Moreover, the Rules sets specific time frames for the acknowledgement and resolution of grievances. Indecency, vulgarity, nudity or any other objectionable content is dealt with strictly with special protection for women and children against exploitation through fake news and any other misuse of social media. In fact, the Rules establish a three-level grievance redress

Table 2. Key elements of the Information Technology Rules, 2021.

Social media	The originator of any objectionable content has to be identified A grievance officer has to be appointed Monthly update of complaints and action taken
Digital news	Press Council of India Cable television networks Self-regulatory bodies
Over-the-top platforms	Content classified into five age-based categories: U (suitable for universal viewing), U/A 7+ (for age 7 and above), U/A 13+ (for age 13 and above), U/A 16+ (for age 16 and above), A (adult viewing) Parental lock for U/A 13+ material Age-verification mechanism for adult content

mechanism, which includes self-regulatory bodies registered with the Ministry of Information and Broadcasting to look after the code of ethics, and a charter for the self-regulating bodies formulated by the Ministry of Information and Broadcasting.

Part 1 of the Guidelines defines essential terms like 'access control mechanism' and 'digital media'. Part 2 is about due diligence, which intermediaries must follow while performing their duties, and the grievance redress mechanism. The intermediary must publish rules and regulations, a privacy policy and a user agreement for access, terms and conditions for publishing and sharing contents. There should be a grievance redress mechanism for significant social media intermediaries. If social media companies do not comply with the country's IT rules, they are liable to face punishment.

Some tech giants, such as Twitter, were not able to appoint a chief compliance officer, resident grievance officer and nodal contact person within the stipulated time frame. A three-month period for compliance was granted to all significant social media intermediaries under the Information Technology Rules. Under the law, the immunity conferred on the intermediaries was conditional, subject to them satisfying the conditions of the Information Technology Rules. Intermediaries that provide messaging services must provide the identification credentials of the person with whom the information originated.

Part 3 focuses on the code of ethics, and procedures and safeguards concerning digital media rules for publishers of news and current affairs content and online curated content. A publisher must not transmit, publish or exhibit any content that is prohibited under any law. Online content must be classified under different ratings: U, U/A7+, U/A13+, U/A16+ and A (see Table 2). There should be restrictions on access to adult content by children and publishers should make curated content accessible to persons with disabilities.

The Constitution of India extends freedom of speech and expression via any media without interference, censorship or reprisal through Article 19(1a) and Article 21. However, this right has to be exercised with some responsibility, in accordance with Article 19(2) of the constitution. Freedom of expression should not endanger or jeopardize the sovereignty and integrity of India, national security, relations with other countries, or law and order.

Data protection in India is currently governed by the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules, 2011. The 2011 rules have been framed under the section 43A of the Information Technology Act, 2000. These Rules impose certain obligations and compliance requirements on organizations that collect, process, store and transfer sensitive personal data of individuals. The Bureau of Indian Standards has also introduced new measures for data privacy assurances. Organizations are supposed to establish, implement, maintain and improve their data privacy management systems. By adhering to these standards, organizations will assure their employees and customers of their privacy practices.

Section 505(1) of the Indian Penal Code prescribes imprisonment for up to three years, a fine or both for those who try to publish, circulate or spread fake information that may disrupt the country's peace or law and order. Section 66D of the Information Technology Act 2000 prescribes imprisonment of three years and a fine of 100,000 Indian rupees. Section 54 of the Disaster Management Act (DMA) defines the penalty for people who try to spread false information regarding an imminent disaster, which may cause panic, confusion and turmoil amongst the public. The perpetrators may face imprisonment of twelve months or a fine under Section 54 of the DMA, 2005.

The key provision is that a platform shall not allow itself to be used as a tool to violate any law that is in force or undermine the country's sovereignty and communicate something that is false. This is part of a global trend. In the initial stages of the Internet, platforms were given immunity from liability in the USA for content posted by users. Section 230 of the Communications Decency Act provided a global template and opened up space for contemporary tech giants. But now, the relevance of Section 230 is being questioned even in the USA, which has a Personal Freedom Index of 8.72 and a Human Freedom Index of 8.46.

Social media platforms are hugely influential but seem to be inclined towards functioning within a legislative framework of rights without responsibilities. This is not tenable. The new Information Technology Rules, among other things, mandate that platforms divulge the original source of unlawful or inflammatory viral messages within 72 hours. The platforms say that the new laws will impact citizens' privacy, as WhatsApp would have to do away with the end-to-end encryption of user chats. But the right to privacy is not absolute, and it is subject to reasonable restrictions. There have been cases of mob lynching and riots in the past, and instances where WhatsApp messages were circulated and recirculated, so it is essential to know the origins of such content. Other countries, such as the UK, the USA, Australia, New Zealand and Canada have issued communiqués that tech companies should include a mechanism in the design of their encrypted products and services so that the governments may access the data (Sarkar, 2021).

Awareness sessions should be held about the resources available, and a curriculum created by leading journalism educators, which could be published by UNESCO for developing countries. UNESCO has published new resources concerning freedom of the press, gender equality and climate communication (Unesco, 2021). These resources can be integrated into school and higher education curriculums.

Online news is also regulated under the Information Technology Act. Online news portals are expected to abide by traditional media regulations, such as those followed by newspapers and news channels. The government ordered Twitter, Facebook and YouTube to take down posts spreading misinformation around COVID-19.

Roles of libraries in controlling fake news, misinformation and disinformation

The IFLA has declared that people have a fundamental right to access expressions of knowledge, creative thought and intellectual activity, and publicly express their views. It asserts that the right to know and freedom of expression are closely interrelated. The right to know is a requirement for freedom of thought and conscience; freedom of thought and freedom of expression are necessary conditions for freedom of access to information. The IFLA avers that a commitment to intellectual freedom is a core responsibility of library and information professionals. It therefore calls on libraries and library staff to adhere to the principles of intellectual freedom, uninhibited access to information and freedom of expression, and to recognize the privacy of library users (IFLA, 2006). Users should be taught to differentiate between advertisements, opinions and reported news. They should develop a sceptical stance towards information in order to be able to reject fake news (Bonnet and Rosenbaum, 2020).

Library professionals should be aware of various tools and websites. For instance, the First Draft functions for charitable and educational purposes. It aims to protect the communities from the detrimental effects of misinformation. It provides practical and ethical guidance in finding, verifying and publishing content sourced from the social web. Library professionals should tell users about CRAAP (currency, relevance, authority, accuracy, purpose) checkpoints and the RADAR (rationale, authority, date, accuracy, relevance) framework for evaluating content.

Commisso (2017) advocated that the archivists should develop repositories of fake news items with sufficient context to enable researchers interpret the information and understand how these items originated and disseminated. Library professionals need to know about image and video verification tools and websites. 'Trust and Verification in an Age of Misinformation', for example, is a Knight Center for Journalism in the Americas massive open online course and comprises four modules.

Library professionals should adhere strictly to the Resolution on Access to Accurate Information of the American Library Association. They could adopt and incorporate the Association of College and Research Libraries' Framework for Information Literacy for Higher Education in their training and awareness sessions for students. Library professionals and associations should work to promote and ensure critical information literacy among current professionals for posterity (Jaeger and Taylor, 2021).

A lack of education and media literacy leads people to fall prey to fake news, as they cannot determine the credibility of information (Cheby, 2018). The sharing of fake news online may cause tremendous harm (Anderson, 2018). It also interferes with democratic processes and civic participation since an informed electorate is a prerequisite for a well-functioning democracy (Saunders et al., 2018).

AL-Zaman (2021) analysed 9657 items of misinformation originating in 138 countries and fact-checked them against 94 organizations to understand the prevalence and sources of misinformation. The study highlights that social media is the biggest producer of misinformation– particularly Facebook. Countries like India, the USA, Brazil and Spain have a high prevalence of misinformation. Interestingly, online information related to Indian systems of traditional medicine might sometimes be wrongly attributed as misinformation by fact-checkers on social media, as pointed out by the Ministry of Ayush. The study also highlights that misinformation pertaining to COVID-19 peaked in March 2020 globally and declined gradually thereafter. The prevalence of misinformation could directly affect the number of casualties in a country. A weak information and communications infrastructure, less digital information literacy, and a lack of awareness among people lead to the high circulation and prevalence of misinformation.

UNESCO (2020) has published *Journalism, 'Fake News' and Disinformation: A Handbook for Journalism Education and Training*, which includes seven modules that could be incorporated in media literacy sessions organized by libraries.

The IFLA has emphasized that critical thinking is an essential skill in media and information literacy, and may help users identify fake news. It has published an infographic with eight simple steps to spot fake news.[2] Libraries could share this infographic with their users.

Libraries have a significant role to play in educating their users to distinguish between real and fake news. They could introduce a two-credit mandatory course for all students to cover the different aspects of media and information literacy, as the University Grants Commission (UGC) has done with its course on 'Research and Publishing Ethics' to promote academic integrity and prevent misconduct in education and research.

The unprecedented powers of computing, big data, artificial intelligence, machine learning, automation and the Internet of things have enabled big tech companies to shape and mould the public conversation, and this has an unpleasant underbelly– the fostering of hatred and division through incendiary content, and the disruption of peace through objectionable images and revenge porn. Fake news spreads in two steps: first, as an ordinary news item and then, when the falsehood has been identified, again as a news item (Murayama et al., 2021). Misinformation about politics, the pandemic and the COVID-19 vaccines spread with little resistance, increasing vaccine hesitancy and reducing compliance with public health measures like social distancing and the wearing of masks.

Several capacity-building webinars were planned and organized in India during the COVID-19 pandemic in 2020–2021. For example, the Knowledge Resource Centre of the Energy and Resources Institute, in association with UNESCO New Delhi, organized a webinar series on 'Fake News and Misinformation', where expert speakers were drawn from the LIS community and other fields. The rationale behind this interactive webinar series was to address the challenges and control public narratives during the pandemic concerning the proliferation of misinformation and fake news. The first webinar was titled 'Seeing through Misinformation: Combating the Fake News Online' and was held on 7 August 2020; the second was titled 'Media and Digital Literacy in Classroom to Combat Misinformation' and was held on 14 October 2020; and the third was titled 'Fighting Fake News: Misinformation and Cybersecurity Issues' and was held on 5 March 2021. Similarly in India, several college and university libraries organized informative webinars on misinformation and fake news for their stakeholders during the COVID-19 pandemic. For example, the central library of Derozio Memorial College in Kolkata hosted the one-day 'National Webinar on Misinformation, Fake News and Society: A Roadmap Approach' on 10 July 2020, and the library of Kiang Nangbah Government College in Meghalaya organized a webinar on 'The Fight against Misinformation, Empowering Citizens in India through News and Information Literacy' on 7 January 2021.

Various national and state-level library associations and library schools also organized different online and virtual sessions on fake news and misinformation during the same period. For example, Kerala Library Professionals' Organisation organized a webinar on 'Misinformation, Disinformation and Mal-information' on 14 April 2021. Videos of some of these events were uploaded on YouTube channels, while some of the events were reported in the newsletters, blogs and social media channels of the respective associations and institutions. Some of the features and tools discussed in the webinars to control the spread of misinformation are presented in Table 3 and Table 4. These tools are being used by university and college libraries across India to control the spread of misinformation. Library professionals have frequently used library websites, blogs and social media channels to reach out to their academic stakeholders and apprise them of the dangers of fake news and misinformation.

We created a questionnaire in Google Forms to learn about LIS educators' perspectives on misinformation and ways to contain it. Four Assistant Professors and seven Associate Professors responded. The LIS educators felt that there was a problem of misinformation and fake news in society. Out of the 11

Table 3. Features to control the spread of misinformation.

Social media	Features
Facebook	Users get a pop-up if they visit a page whose contents have been flagged by fact-checkers. They also get a notification if they share some misinformation.
WhatsApp	A text, video or image message may be forwarded to five contacts at once.
Twitter	New labels for tweets with synthetic and manipulated media or misleading information related to COVID-19. The labels link to a Twitter-curated page or an external trusted source.

Table 4. Tools to check the authenticity of news, images and videos.

Tool	Website	Purpose
Tinyeye Reverse Image Search	https://tineye.com	For checking images
Google Image Search	https://www.google.com/imghp	
AltNews	https://www.altnews.in	For news content
PIB Fact Check	https://pib.gov.in/factcheck.aspx	
Serelay applications	https://www.serelay.com	For images and videos
Mediactive	https://mediactive.com	Courses on information and media literacy, and misinformation
Covishaala	https://www.logically.ai/covishaala	

respondents, 10 thought that the circulation of misinformation and fake news led to wrong decision-making and perceptions. All of the LIS educators felt that the circulation of misinformation and fake news endangered law and order in the country. Ten of the educators mentioned that there were modules in their respective LIS curriculums to teach students to differentiate between fake and authentic news, and information and misinformation. Conversely, two of the LIS educators said that they did not have any such modules. Out of the 11 educators, only two mentioned that they had plans to start modules for their students. One educator had secured a grant of US$1000 from the US Federal Grants for her department to conduct a webinar series on media and information literacy. The LIS educators offered many suggestions for containing the circulation of misinformation in society: people should refrain from forwarding messages without verifying them; students at school, college and university levels need to be sensitized to the authenticity and validity of sources of information and news, and should be made aware of how to differentiate between legitimate and fake information sources; students should be made aware of the IFLA guidelines for spotting fake news; and fact-checking websites should be consulted for checking and ascertaining the validity of a source and its contents. It was also mentioned by one of the LIS educators that the prevalence of fake news could not be completely eliminated, but it could be controlled by making people aware of the various tools for verifying content.

Conclusion

The importance of the media cannot be overestimated, particularly in times of disaster, whether natural or man-made. In India and beyond, the media has acted as a beacon during the COVID-19 pandemic, with countless instances of delivering a free flow of critical information. The media has definitely enhanced the democratic and participative quotient of the world's largest democracy. It has exponentially increased accessibility to otherwise inaccessible ivory towers of authority and power. The cascading effect includes enhanced accountability and accessibility. Apart from being a source of entertainment, the media has been informative, developmental and participatory. It has been a great enabler, empowering the layperson– many defaulting Goliaths have been put in their place by humble Davids.

With so much revolutionizing power, the constituents of society should know how to wield this power judiciously and constructively to their advantage, for progress, peace and development, rather than being misled by a handful of misrepresented facts, figures, audio clips or videos. This is why media and information literacy should be incorporated in curriculums at various levels in academia.

The Indian initiatives, driven by volunteers and concerned citizens, to fact-check and counter fake news, misinformation and disinformation are exemplary for developing countries. Such countries have minimal resources for these types of schemes. With the support of LIS institutions, citizens in these countries could have more capabilities and capacities to identify the sources of fake news and minimize its spread in real time on social media and instant messaging platforms. During the pandemic, library and information professionals and LIS educators, associations and institutions in India extended their support to society by strategically controlling the spread of misinformation and fake news through several interventions, such as organizing informative webinars and online sessions, and analysing and updating the misinformation status of various viral posts on library websites, blogs or social media channels. This study is important for library and information professionals in other countries. It highlights the efforts made by different stakeholders in India to stem the rising tide of misinformation, disinformation and fake news. LIS educators are making concerted efforts to sensitize students to differentiating between information, misinformation, disinformation and fake news, and not indiscriminately forwarding, sharing and liking posts and videos on social media.

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Notes

1. See https://www.logically.ai/covishaala
2. See https://www.ifla.org/publications/node/11174

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An evaluation of institutional repository development in African universities

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Abstract
The purpose of this study is to evaluate the development of institutional repositories in university libraries in Africa. An online questionnaire and institutional repository site investigation methods were used to collect data from 134 university libraries in English-speaking countries in Africa. The study finds that there is an increasing wave of development of institutional repositories in English-speaking countries in Africa. The majority of the institutional repositories contain high numbers of theses and dissertations, followed by journal articles and conference and workshop papers. The challenges that are identified include inadequate facilities, unstable Internet connectivity, a lack of funds, an irregular power supply, collecting material for institutional repositories, a lack of skilled information and communications technology personnel, copyright issues and an absence of institutional repository policies. The results from the study provide important data and insight into the development of institutional repositories in university libraries in the context of developing countries, and offer suggestions for university librarians and management teams.

Keywords
Institutional repositories, local contents, university libraries, developing countries, institutional repository policies, Africa

Introduction

A recent emerging trend in academic libraries has been the implementation of institutional repositories. Universities, as institutions of higher learning, place an emphasis on research as one of their core functions, in addition to teaching and community services. An institutional repository could thus be viewed as a digital archive that provides a platform where universities can archive their intellectual output. According to Lynch:

> a university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution. (Lynch, 2003: 327)

Institutional repositories can contain theses, dissertations, projects, course notes, seminar papers, conference proceedings, administrative documents, learning materials and other forms of grey literature (Dlamini and Snyman, 2017). They have the potential to increase the visibility, prestige, ranking and public value of researchers and universities. Just a few years ago, universities in Nigeria, for example, began to heed the call made by the National Universities Commission (2007), which encouraged academic libraries to provide access to both print and electronic resources– especially those generated within the university– in order to increase access to information

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resources and the visibility of their institutions as a measure of international prestige and recognition. The idea of institutional repositories is a current theme in tertiary institutions, which have seen them as a necessity for making available their institutional resources, and thereby increasing their visibility and performance, particularly in the ongoing web rankings of world universities.

Few universities from Africa have a presence in OpenDOAR (2020). African universities are not featured in OpenDOAR simply because they lack visibility– many have not created institutional repositories to showcase their research power to the world. OpenDOAR is an authoritative directory of academic open access repositories worldwide. Regrettably, in UniRank's (2021) web ranking of the best 200 universities in the world, no single university from Africa made the list of 200. This ranking, together with other factors, is based on a visible institutional repository. In the same vein, only 12 universities from Africa made it onto the Center for World University Rankings' (2021) 2021–2022 list of the top 1000 universities, with the University of the Witwatersrand in 292nd position, Stellenbosch University in 435th and the University of KwaZulu-Natal in 483rd (all from South Africa). Among the 12 African universities that made the list, six are from South Africa, three are from Egypt and there is one each from Uganda, Morocco and Tunisia. The Center for World University Rankings (2021) ranked universities on four criteria: quality of education; alumni employment; quality of faculty; and research performance. The methodology has been enhanced for 2022, with research now accounting for 70% of the score.

Despite the potential benefits associated with the use of an institutional repository by universities, observations have shown that most universities in Africa have not keyed into this innovation. This could be due to several factors, such as a lack of university management support and low level of awareness on the part of management and faculty, coupled with a lack of funds, a lack of policy statements on submissions and restrictions, and issues of copyright and preservation. In order to make local content originating in African universities visible, it has become imperative for university libraries in Africa to embark on the development of institutional repositories. It also appears that the daily research output from universities– such as research papers, theses and dissertations, projects, and other valuable library information resources from the African continent– is not widely communicated to users and researchers worldwide. Organizations and institutions that fund research have become concerned that the published results of the research they have funded remain largely unread, and that scientific progress is stalled by inadequate access to related research conducted globally. Therefore, a well-developed institutional repository is the answer to increasing the visibility and accessibility of such research. For this reason, the present study aims to evaluate the development of institutional repositories in African universities. The results will create awareness of the need for all universities in Africa to develop institutional repositories to make their intellectual output visible.

Research questions

To achieve the aims of this study, the following research questions were raised:

1. How many university libraries have developed institutional repositories in Africa?
2. What contents are used to develop institutional repositories?
3. What are the benefits of developing institutional repositories for the university, the library and the author?
4. What type of software do institutional repositories use to manage their contents?
5. What type of metadata-harvesting protocol is being used in the institutional repositories?
6. What policy statements are in place for the development of institutional repositories in Africa?
7. What challenges are encountered in developing institutional repositories in Africa?

Literature review

Development of institutional repositories

A key criterion that is used to measure the quality of a university is the quality and quantity of its research output (Anenene et al., 2017). A situation where the research output from a particular university cannot be ascertained will make it very difficult to evaluate the university's output and could also impede the collation and dissemination of research that could benefit different sectors of society. This reveals the need for the development of institutional repositories in universities to make their intellectual output visible globally. Ejikeme and Ezema (2019) affirm that open access initiatives will help to bridge the information gap between developing and developed countries.

According to Grundy (2017), one of the most prominent indicators for university rankings is research productivity– that is, a university's reputation for research excellence among its peers. Another important criterion is research influence (citations). The research-influence indicator looks at a university's role in spreading new knowledge and ideas– that is, the number of times a university's published works are cited by scholars globally. For example, Shoeb (2010) reports that, in its January 2009 ranking of the top 100 universities in Bangladesh, the Cybermetrics Lab listed the Independence University 1st among the private universities, 3rd among all universities (after Bangladesh University of Engineering and Technology and Dhaka University), and 75th in the Indian subcontinent. This ranking, according to Shoeb (2010), was based on research activities, the visibility of the university nationally and internationally, the volume of scholarly documents created and published, and the size and impact of its web presence. The fruits of research from formal research programmes in conventional universities and academic research institutions in African universities are under-utilized, as access to theses and dissertations is very limited for users outside of the university sector (Baro and Otiode, 2014; Ezeani and Ezema, 2011).

Contents used to develop institutional repositories

The types of content range from published articles to theses and dissertations, book chapters, data sets, conference papers, learning objects, and grey literature and ephemera. Singeh et al. (2013) report that for repositories to be successful and sustainable, they should contain scholarly works of enduring value. The Scholarly Publishing and Academic Research Coalition has highlighted the types of grey literature that may be included: preprints, working papers, theses and dissertations, research and technical reports, conference proceedings, departmental and research centre newsletters and bulletins, papers in support of grant applications, status reports to funding agencies, committee reports and memoranda, statistical reports, technical documentation and surveys (Marsh, 2015). Bangani (2018) found that institutional repositories in public universities in South Africa mostly contain electronic theses and dissertations, while journal articles and conference proceedings are increasing in number. Other common contents are memorial lectures, discussion papers, library newsletters, university calendars and graduation ceremonies, university management collections, media coverage, events, research data, policy briefs, university communiqués and audio collections (Bangani, 2018). There are also honours reports, final-year reports, undergraduate research papers, examination papers, and a host of other types of content (Ezema, 2011). Similarly, Ezema and Okafor (2015) found that electronic theses and dissertations, journal articles, conference proceedings, faculty or departmental journals and inaugural lectures were the most prevalent types of content in Nigerian universities.

Shajitha and Abdul Majeed (2018) evaluate the content growth of institutional repositories in South India and analyse the growth of the different types of items available in these institutional repositories. The study finds that journal articles were the most common type of content in institutional repositories, followed by theses and dissertations. A further prominent category was conference proceedings, and inaugural lectures also exhibited a high growth rate. The study concludes that Indian institutions are actively engaging in data-curation activities, depositing a wide variety of items in their respective repositories.

Benefits of developing institutional repositories for the university, the library and the author

The main aim of establishing an institutional repository is to support the institution and research needs related to the goals of the university by making most of the research output and unique and valuable holdings of the university easily accessible via searchable online databases (Ukwoma and Dike, 2017). Building an institutional repository comes with many benefits. According to Dhanavandan and Tamizhchelvan (2013), these benefits include providing a central component and reforming scholarly communication by stimulating innovation in a disaggregated publishing structure; providing an immediate and valuable complement to the existing scholarly publishing model, while stimulating innovation that evolves and improves over time; enhancing resource sharing; and providing long-term solutions. Omeluzor (2014) states that both institutions and contributors benefit from institutional repositories, adding that after developing a standard repository, researchers, teachers, students, university stakeholders and other users will be able to access the digital resources provided by the repository. An institutional repository has the potential to increase the visibility, prestige, ranking and public value of researchers and universities.

The contributors also benefit from institutional repositories, as they are likely to enjoy, among other things, free and easy access to articles, open access to a wider audience of researchers, an increased impact of their work, easy access to research work and the creation of further research approaches, self-archiving and increased citation in published scholarly work (Dhanavandan and Tamizhchelvan, 2013). This implies that, apart from universities, faculty members and other contributors to institutional repositories have much to gain. Institutional repositories add to the credibility of a university and play an important role in establishing the university's identity and values. Scholarly communication has had a tremendous impact on the global recognition of academics and institutions. Authors gain popularity through their publications, which improves their university's ranking and visibility (Ukwoma and Dike, 2017). Baro et al.'s (2014) study reveals that the benefits of electronic theses and dissertations for the university, the library and the student include improved university ranking and visibility, increased access to theses and dissertations, space saving in the library, the preservation of work for future generations, and cost savings for students. According to Baro et al., electronic theses and dissertations raise the profile of the students who author them, the faculty and departments that support them, and the institutions that provide them to the world.

Types of software used to manage digital contents in institutional repositories

There are several types of institutional repository software, including DSpace, EPrints, Fedora Commons and Greenstone (Anyaoku et al., 2019). Several studies have reported the popular use of DSpace for the management of contents in institutional repositories, as it, by default, represents communities (e.g. university departments) and collections (e.g. papers and dissertations) while offering essential workflow management support for item submission by individuals (Ahammad, 2019; Baro et al., 2014). DSpace is also free for anyone to use and open source. It is possible to change its source code according to the individual institutional requirements. The top-four reasons for using DSpace have been described as: (1) focus on institutional repository use; (2) it is lean, agile and flexible; (3) it is easy and simple to install and operate; and (4) it includes a core set of functions that can be extended to or integrated with complementary services and tools in the larger scholarly ecosystem (DSpace, 2015).

Li and Banach (2011) identify the use of the following software in organizing local contents: DSpace, Digital Commons, Greenstone, CONTENTdm and DigiTool. The management process for print resources is completely different from the management of the ever-growing number of digital information resources. The management of digital information resources requires not only computer hardware but also appropriate software that will ensure correct organization, accessibility, storage and long-term preservation. Baro and Otiode (2014) observe that the most widely adopted software to manage electronic theses and dissertations in university libraries in Africa is DSpace. Islam et al. (2020) describe and analyse the condition of the digital preservation of institutional publications in the libraries of higher educational institutions, especially in public universities in Bangladesh. The study found that DSpace has been adopted in these university libraries for digital preservation because of its effective, user-friendly modules.

Challenges of developing institutional repositories in developing countries

In many African countries, the development of institutional repositories has faced serious problems, ranging from low Internet connectivity to software and hardware challenges, a lack of highly skilled personnel, inadequate power supply, low bandwidth, legal copyright laws, inadequate funding, a lack of organizational infrastructure and policies, and project sustainability (Ezeani and Ezema, 2011). Dlamini and Snyman (2017) conducted a study on institutional repositories in Africa, which identified the following major obstacles to the development of institutional repositories in African institutions: inadequate funding or financial support, a lack of support from institutional management, and a lack of awareness of institutional repositories at the institutional management level.

The respondents in Anyaoku et al.'s (2019) study took the time to write comments on the problems encountered in the development and maintenance of institutional repositories. They mentioned issues such as: the need for dedicated staff to manage the institutional repository; none of the repository staff being professionals but training on the job; not having enough resources (e.g. sufficient random-access memory to cater for the access load and to run backups, and a shortage of staff to maintain and manage the institutional repository, with one person being responsible for everything); a lack of expertise in the use of DSpace; the lack of an annual budget for the institutional repository, limiting how much could be done each year; the cost of Internet services; incessant power cuts; staff feeling reluctant to submit their publications to the institutional repository; legal issues; a lack of expertise on the part of librarians in troubleshooting technical problems; and a lack of awareness among academic staff of the existence of the institutional repository.

Sadiku et al. (2018) report on the issues around building and sustaining an institutional digital repository and the corresponding challenges for global visibility in Nigeria. They argue that building and sustaining an institutional digital repository project requires a state-of-the-art technological infrastructure, skilled manpower and strong financial backing, as well as a user community with information and communications technology (ICT) skills. Feuer (2014) describes how, with a minimal budget, lots of goodwill and successful collaboration, the University of Ontario Institute of Technology rapidly built an electronic theses and dissertations collection. The study describes the collaboration between the library, the faculty of graduate studies and the campus information technology department, which resulted in the successful launch of the electronic theses and dissertations programme. This library used a 'if you build it, they will come' strategy for the development of an institutional repository, with the presumption that faculty would be appreciative of the benefits from submitting their work, including enhanced visibility, recognition and a practical outlet for scholarly communication and publishing.

Research methodology

This study adopted a survey research design. The data collection was in two parts. First, the OpenDOAR database was searched to identify university libraries in English-speaking countries in Africa that have developed institutional repositories and are listed in the database (OpenDOAR, 2020; see also International African Institute, 2021). Each institutional repository in the various universities was searched to collect data, such as the year the institutional repository was established; the content count (size); the software used to manage the digital contents; the metadata-harvesting protocol used; policy statements related to the institutional repository; and the link to the institutional repository. This enabled us to establish the types of policy statements that had been formulated to guide the development of the institutional repositories in these universities.

Second, an online questionnaire (see Appendix 1) was designed using SurveyMonkey to collect data from the librarians or contact persons in charge of the institutional repositories in the university libraries in Africa. The email address of the librarian or contact person in charge of the institutional repository in each university library was collected from the institutional repository websites.

The data collection started in January 2021 and ended in April 2021. In total, data was collected from 134 institutional repositories in universities in English-speaking countries in Africa. The results are presented in the following tables and figures.

Results and discussion

Designation of respondents

Out of the 134 respondents, 53 indicated that they were institutional repository administrators or managers, 37 were systems librarians, 31 were digital librarians and 13 were digital content creators.

Number of university libraries in Africa that have developed an institutional repository

The results in Appendix 2 show that, in 2021, 134 universities in English-speaking countries in Africa had successfully developed an institutional repository. This demonstrates that university libraries in Africa are taking advantage of the proliferation of modern technologies to leverage their content as a strategy to contribute towards the realization of institutional goals, as well as enhancing visibility. This development is impressive as previous studies only identified a few university libraries developing institutional repositories on the African continent (Anyaoku et al., 2019; Baro and Otiode, 2014; Tiamiyu and Aina, 2008). From Appendix 2, it is evident that some university libraries have been embracing the development of an institutional repository since 2006, while many others have joined the trend since 2019. Ezema and Okafor (2015) state that librarians have a critical role to play in advocacy, repository development, and imparting digital literacy skills and knowledge regarding emerging technologies. Tiamiyu and Aina (2008) view digital libraries of electronic theses and dissertations as promising and extremely advantageous to scholars, especially in developing countries. They further highlight that African countries should embrace emerging knowledge and technologies with a global digital dimension in order to reposition the continent in the global knowledge landscape.

Contents used by university libraries to develop their institutional repositories

The data collected from the librarians in charge of the institutional repositories revealed five major types of content that were used to develop their institutional repositories. Out of the 134 responding institutions, 130 (97.0%) indicated that they collected theses and dissertations, followed by 94 (70.1%) that collected journal articles, and 71 (53.0%) that collected conference and workshop papers. Other content that was collected included books, chapters and sections (62, 46.3%), and learning objects (50, 37.3%; see Figure 1). For the 'other, please specify' option, some university libraries mentioned content such as bibliographic references, reports and working papers, and

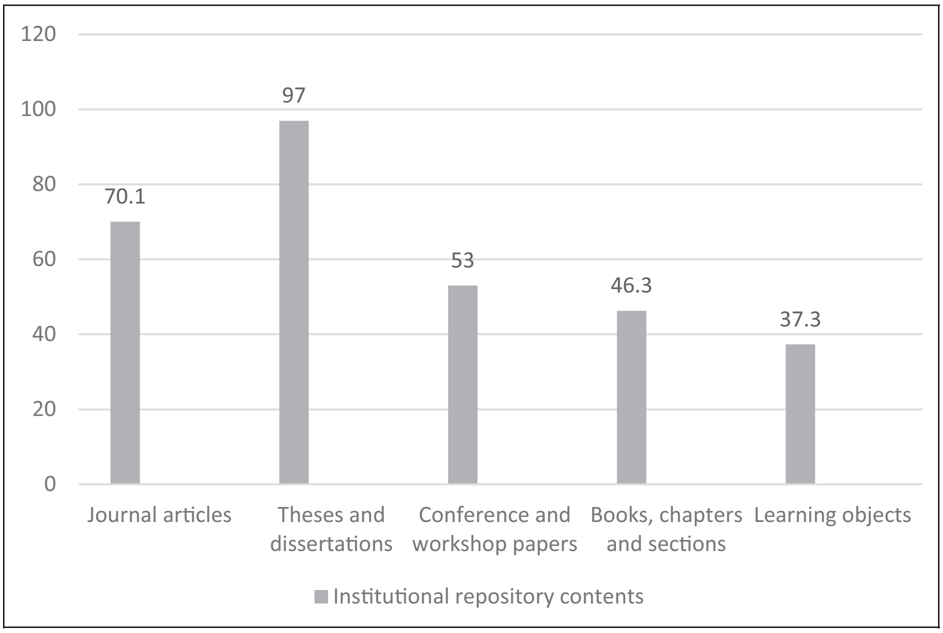

Figure 1. Contents used by university libraries to develop institutional repositories in Africa.

other special items such as guest lectures. This finding is consistent with the findings of Chisita and Chiparausha's (2020) study, who confirm that academic libraries in Zimbabwe were able to use institutional repositories to effectively generate new e-contents and explore opportunities to license their contents. They add that the contents of the Zimbabwean institutional repositories included local e-content such as peer-reviewed articles, conference proceedings, theses and dissertations, technical reports and grey literature. Similarly, the recent study by Arlitsch et al. (2021) reveals that different types of content, such as electronic theses and dissertations, may affect use of institutional repositories. They found that the Epsilon Archive for Student Projects, Massey Research Online, University of Western Cape repository electronic theses and dissertations repository, UWSpace and CaltechTHESIS are among the repositories whose content consists almost entirely of electronic theses and dissertations, and whose use ratios were the highest in their data set, ranging from 0.37 to 0.90.

Benefits of developing institutional repositories for the university, the library and the author

In this section of the questionnaire, the respondents were asked about the level they agreed or disagreed with the benefits of institutional repository development for the university, the library and the author. The results in Table 1 show that, of the 134 respondents, the majority strongly agreed or agreed that the development of an institutional repository would improve their university's ranking (120, 89.5%) or enhance postgraduate education (93, 69.4%), and all of the respondents strongly agreed or agreed that the development of an institutional repository would improve their university's visibility. These findings are in line with the existing literature, especially the publications of Omeluzor (2014), Sheeja et al. (2018) and Noman-Hossain and Zabed-Ahmed (2020). Omeluzor (2014), for example, reports that institutions benefit from institutional repositories as they serve as a tangible indicator of an institution's quality, thus increasing its visibility, prestige and public value; increase the ranking of an institution at both local and international levels; enhance learning, online teaching and research, especially in universities; and present an institution's intellectual capital to a wide range of scholars. Sheeja et al. (2018) report that the scholarly output of a university is one of the major parameters of university ranking schemes. They add that those Indian universities which scored highly for research productivity came top in the National Institutional Ranking Framework of India, and also figured in world university rankings. Sheeja et al. conclude that there is a close relationship between scholarly productivity and institutional ranking, and that students are increasingly using ranking results as a useful information tool for making decisions. Similarly, Noman-Hossain and Zabed-Ahmed (2020) produced a national ranking of the universities in Bangladesh based on scholarly communication and citation metrics as a way of assessing the performance of higher education institutions in that country.

Table 1. Benefits of developing institutional repositories for the university, the library and the author.

Benefits	Strongly Agree	Agree	Disagree	Strongly disagree
To tde University				
Improve university ranking	90(67.1%)	30 (22.4%)	14 (10.5%)	–
Enhance postgraduate education	66 (49.3%)	27 (20.1%)	34 (25.4%)	7 (5.2%)
Improve university visibility	105(78.4%)	29 (21.6%)	–	–
To the Library				
Saves space in the library	39 (29.1%)	58 (43.3%)	37 (27.6%)	–
Increase readership	70 (52.2%)	24 (17.9%)	31 (23.1%)	9 (6.7%)
Minimize damage to the original material	56 (41.8%)	28 (20.9%)	49 (36.6%)	1 (0.7%)
Increase access to local contents	87 (64.9%)	14 (10.4%)	23 (17.2%)	10(7.5%)
To the author				
It facilitates the dissemination of scholarly research	45 (33.6%)	55 (41.0%)	10 (7.4%)	24 (17.9%)
It assists in globalization of research findings	61 (45.5%)	44 (32.8%)	9 (6.7%)	20 (14.9%)
It promotes international collaborations among researchers.	70 (52.2%)	43 (32.1%)	13 (9.7%)	8 (6.0%)
It increases the research impact of authors	80 (59.7%)	4 (3.0%)	29 (21.6%)	21 (15.7%)

Concerning the benefits of developing an institutional repository for the library, the majority of the respondents strongly agreed or agreed that it saves space in the library (97, 72.4%), increases readership (94, 70.1%), minimizes damage to the original material (84, 62.7%), and increases access to local content (101, 75.3%). Therefore, the study revealed that the benefits of electronic theses and dissertations for the library include saving space in the library, increasing access to texts, and minimizing damage to the original material, thereby preserving it for future generations. These findings are in agreement with those of Rama (2011), who found that electronic theses and dissertations provide a solution to addressing physical space requirements; with electronic theses and dissertations, no physical shelf space is needed, and libraries do not have to worry about the circulation, shelving, labelling, bar coding, and cataloguing of theses and dissertations, even though metadata will still need to be created.

With regard to the benefits of developing an institutional repository for the author, the majority of the respondents strongly agreed or agreed that it facilitates the dissemination of scholarly research (100, 74.6%), assists in the globalization of research findings (105, 78.3%), promotes international collaborations among researchers (113, 84.3%), and increases the research impact of authors (84, 62.7%). This shows that the development of institutional repositories enhances the visibility, readership and possible citation of the research output of the author. This finding is consistent with the findings of Ferreras-Fernandez et al. (2016) that open access institutional repositories are an advantageous channel of scientific communication for grey literature like dissertations and theses because they increase visibility and use, and also produce a significant citation rate.

Applied software used to manage content in institutional repositories

The study revealed that, of the 134 responding institutions in Africa, 7 (5.3%) used EPrints to manage their institutional repository contents, 124 (92.6%) used DSpace and 1 (0.7%) used Greenstone. For the 'other' option, 1 (0.7%) university each mentioned in-house software (ContentPro and Figshare; see Figure 2). The results indicate that DSpace was widely used by a majority of the universities in Africa to manage digital contents in their institutional repositories. This finding agrees with Yiotis's (2008) study, which found that DSpace was used all over the world, in places such as the Philippines, Russia, India, Canada, Japan, 15 African nations, the USA and the UK. Similarly, Chisita and Chiparausha (2020) report that a wave of institutional repositories has also swept through Zimbabwe's academic landscape, with all universities using free and open source software, including DSpace and Greenstone. Their study found that librarians confirmed that their institutions had open access and electronic theses and dissertations policies in order to enhance the discoverability and visibility of their scholarly publications. The policies covered a variety of issues, including criteria for evaluating journals, open access models, ethics, self-submission and mediated submission, self-archiving, embargoes and intellectual property rights.

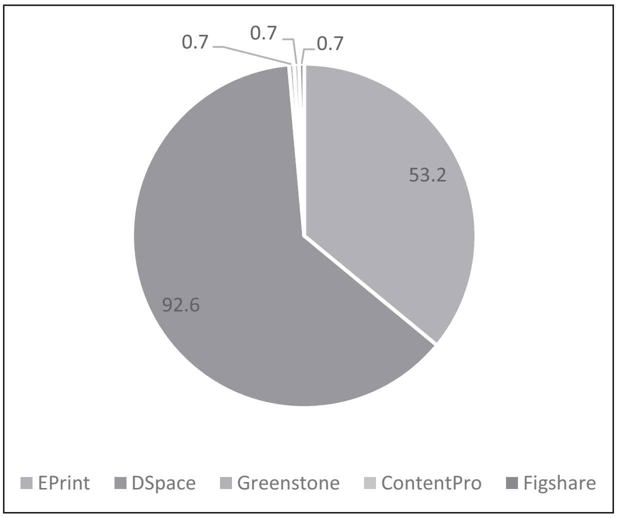

Figure 2. Applied software used to manage content in institutional repositories in Africa.

Metadata-harvesting protocol used in institutional repositories

The investigation of the 134 institutional repositories revealed that the majority (89, 66.4%) supported the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), while 45 (33.6%) did not specify the metadata-harvesting protocol used (see Figure 3). The majority of the repositories used the open source metadata-harvesting protocol (i.e. OAI-PMH) because of its application-independent harvesting framework (Loan and Sheikh, 2016). All such open access archives would be OAI-compatible. This means that they would be compatible with the open archives initiative's metadata harvesting protocol (OAI-PMH) and, therefore, would be interoperable and searchable by any search engine globally.

Policy statements available for the development of institutional repositories in Africa

For this question, the respondents were asked to indicate the type of institutional repository policy that was available at their university. Almost half (61, 45.5%) of the respondents indicated that they had an access policy statement, with 14 (10.4%) having a preservation policy. Only a few universities indicated having a copyright policy (6, 4.5%); 5 (3.7%) had a submission policy; and 3 (2.2%) had a content policy to guide institutional repository development (see Figure 4). More than half (72, 53.7%) of the respondents indicated that they did not have any policy statement regarding institutional repositories. This shows that many institutional repositories on the African continent are developed without consideration of formulating policy statements to guide their development.

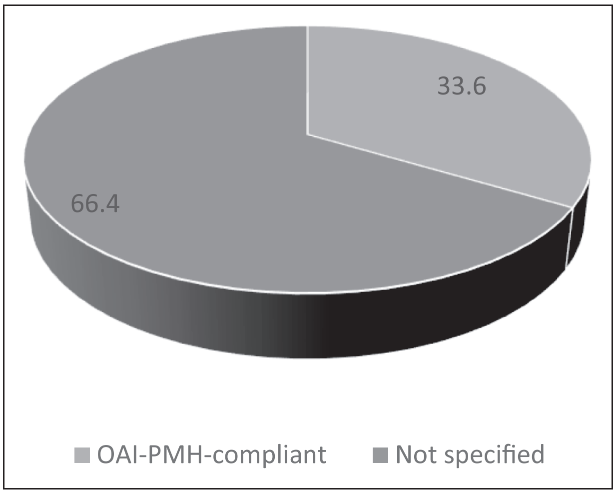

Figure 3. Metadata-harvesting protocol used in institutional repositories.

With the content of institutional repositories growing rapidly, it is important to look at how policies have been developed to guide issues such as content submission, the type of material to be added to the institutional repository, digital preservation and copyright. In the present study, the institutional repositories website investigation revealed that several institutional repositories have policy statements on different areas. The repositories at Covenant University and Landmark University have a content submission policy: 'items may only be deposited by accredited members of the institution, or their delegated agents'; 'authors may only submit their own work for archiving'; 'the administrator only vets items for the eligibility of authors/depositors, relevance to the scope of e-print, valid layout and format, and the exclusion of spam' (Submission policy for Covenant University, Ota, Nigeria). On copyright issues, Landmark University offers the following statement:

> Items may be reproduced, displayed or performed for personal research or educational purposes as long as the authors, title and full bibliographic details are given a URL for the original metadata page, full items must not be sold commercially without formal permission of the copyright holders (Copyright policy for Landmark University, Nigeria).

The access policy of the University of Cape Coast, Ghana, reads: 'Anyone may access the metadata free of charge' and 'Items can be deposited at any time, but will not be made publicly visible until any embargo period has expired'. With regard to its preservation policy, the statement reads: 'Items will be retained indefinitely, the repository will try to ensure continued readability and accessibility' (Preservation policy for University of Cape Coast, Ghana). At Makerere

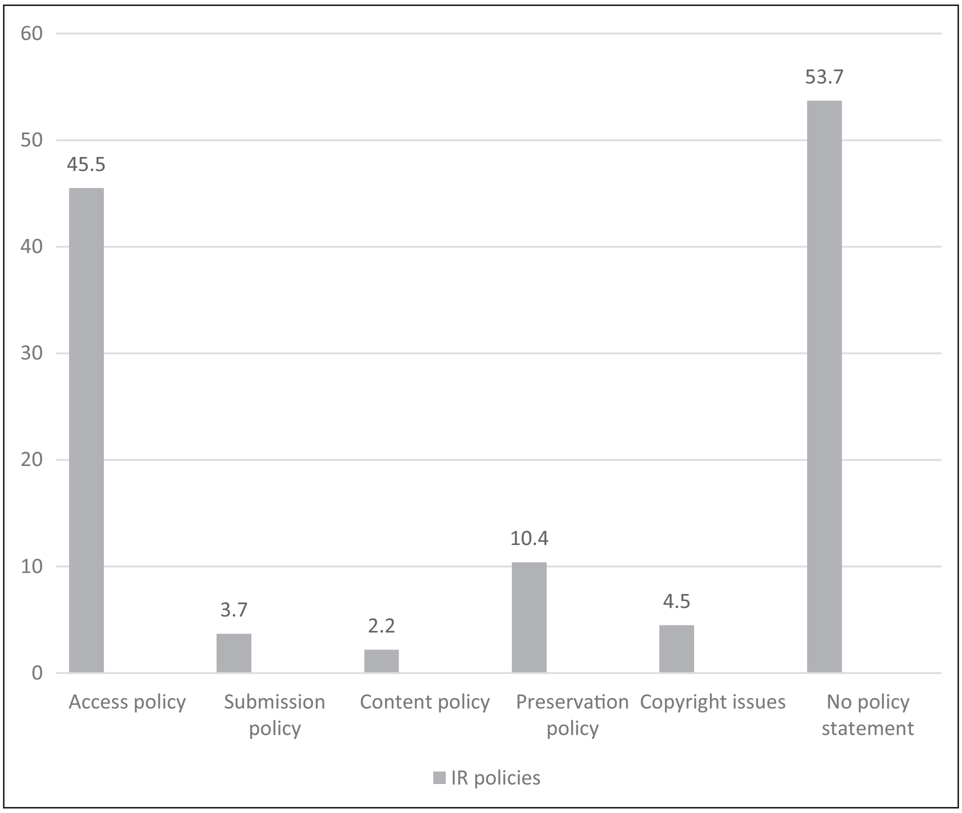

Figure 4. Policy statements available for the development of institutional repositories.

Table 2. Challenges encountered in developing institutional repositories.

Challenges	Strongly agree	Agree	Strongly disagree	Disagree
Inadequate facilities	80 (59.7%)	47 (35.1%)	3 (2.2%)	2 (1.5%)
Unstable internet connectivity	56 (41.8%)	34 (25.4%)	41 (30.6%)	3 (2.2%)
Lack of fund	75 (56.0%)	38 (28.4%)	7 (5.2%)	14 (10.4%)
Irregular power supply	86 (64.2%)	12 (9.0%)	30 (22.4%)	6 (4.5%)
Challenge of collecting materials for the IR	68 (50.7%)	51 (38.1%)	12 (9.0%)	3 (2.2%)
Lack of skilled ICT personnel	71 (53.0%)	25 (18.7%)	15 (11.2%)	23 (17.2%)
Copyright issues	35 (26.1%)	34 (25.4%)	51 (38.1%)	14 (10.4%)
Absence of IR policies	62 (46.3%)	36 (26.9%)	25 (18.7%)	11(8.2%)

University, Uganda, there is the following access policy statement: 'Anyone may access the metadata free of charge' (Access policy for Makerere University, Uganda). The investigation of the institutional repository websites revealed that some universities only have a policy statement regarding access, while a few have formulated institutional repository policy in all areas. For example, Stellenbosch University, South Africa, has an institutional repository policy in all areas, including access, submissions, content, preservation and copyright. Hawkin et al. (2013) call for institutions to make their electronic theses and dissertations policies and information about electronic theses and dissertations available prominently and conveniently on their websites and in their practices.

Challenges encountered in developing institutional repositories

The respondents were asked about the challenges they encountered in developing their institutional repositories (see Table 2). Identifying such challenges will prompt university libraries that are planning to develop institutional repositories to consider ways to overcome these challenges.

Inadequate facilities. The majority (127, 94.8%) of the respondents strongly agreed or agreed that inadequate facilities hindered the development of an institutional repository at their university. Institutional repositories are ICT-driven and therefore any university that wishes to develop its institutional repository must devote huge sums of money to its ICT infrastructure. Unfortunately, most developing countries, particularly in Africa, are associated with poor ICT development (Anene et al., 2020; Dlamini and Snyman, 2017). For those universities in developing countries that are likely to champion the development of an institutional repository, a significant percentage of their budget should be devoted to ICT facilities. Sadiku et al. (2018) report on the issues around building and sustaining an institutional digital repository and the corresponding challenges for global visibility in Nigeria. They argue that building and sustaining an institutional digital repository project requires a state-of-the-art technological infrastructure, skilled manpower and strong financial backing, as well as an ICT-skilled user community.

Unstable Internet connectivity. The analysis regarding Internet connectivity shows that the majority (90, 67.2%) of the respondents strongly agreed or agreed that unstable Internet connectivity was a challenge to the development of an institutional repository. Evidently, most university libraries in Africa are still struggling with stable, high-speed Internet connectivity (Anene et al., 2020; Sadiku et al., 2018). For university libraries in developing countries to offer world-class services to their users by developing institutional repositories, they need stable, high-speed Internet connectivity.

Lack of funds. Approximately 84.4% of the respondents strongly agreed or agreed that a lack of funds was a challenge to the development of an institutional repository. This finding is consistent with the findings of Dlamini and Snyman (2017), who conducted a study on institutional repositories in Africa. One of the purposes of the study was to investigate the current state of institutional repository development in Africa and report on the obstacles and challenges that academic institutions are facing. The study covers 26 institutional repositories in Africa: 10 from South Africa, 6 from Tanzania, 3 from Ghana, and 1 each from Cameroon, Namibia, Botswana, Lesotho, Uganda, Sudan and Zambia. It identifies the following major obstacles to the development of institutional repositories in African institutions: inadequate funding or financial support, a lack of support from management, and a lack of awareness of institutional repositories at the management level. The study recommends strategies for how African academic institutions could increase the number and improve the utilization of institutional repositories on the continent.

Irregular power supply. The data shows that 98 (73.2%) of the respondents strongly agreed or agreed that an irregular power supply hindered the development of an institutional repository. This finding is in agreement with the findings of Ezema and Ugwu's (2013) and Mapulanga's (2013) studies that the irregular power supply in Africa is a challenge to university libraries in their digitization projects. The development of an institutional repository at any university cannot succeed without a stable power supply. This could possibly be overcome by the installation of alternative power sources, such as solar energy.

Collecting material. Regarding the challenge of collecting material for institutional repositories, 119 (88.8%) of the respondents strongly agreed or agreed that the development of institutional repositories was hindered by the challenge of collecting material. Collecting contents such as electronic theses, dissertations and journal articles from authors is a major challenge to building institutional repositories in Africa. For example, if the submission of electronic theses and dissertations is not made mandatory, Master's and PhD students will not want to submit their work for the purpose of developing institutional repositories for fear that online access to their full-text theses will increase the chances of misuse of their research. Faculty members also need to be enlightened and encouraged to submit their journal articles to build institutional repositories.

Lack of skilled ICT personnel. A total of 96 (71.7%) of the respondents strongly agreed or agreed that a lack of skilled ICT personnel was a challenge to the development of institutional repositories. This finding agrees with the findings of Anyaoku et al. (2019), who report that more than half (12, 52.2%) of the responding institutions in their study indicated that their institutional repository lacked the necessary technical staff with the required skills to handle and manage the institutional repository. This is a problem for many institutional repositories in Africa, as several studies (Dlamini and Snyman, 2017; Kari and Baro, 2016; Sadiku et al., 2018) have consistently reported an inadequate level of ICT-skilled personnel as one of the major problems facing libraries in Africa.

Copyright issues. A majority (69, 51.5%) of the respondents strongly agreed or agreed that copyright issues were a challenge to the development of institutional repositories. The principle of fair use recognizes the lawful use of copyrighted work without deeming it an infringement, notwithstanding that the copyright holder has not authorized such use (Chuma-Okoro, 2010). Repositories require that legal issues bordering on copyright be cleared. According to Koulouris et al. (2013), copyright issues were to be dealt with using Sherpa Romeo, along with the help of the institute's legal department. The decision to provide a copyright clearance through the institutional repositories solved many issues related to contend depositing. Acquiring the rights from content contributors and copyright holders to distribute content freely is an integral part of collecting content.

Absence of institutional repository policies. The data shows that 98 (73.2%) respondents strongly agreed or agreed that the absence of institutional repository policies was a challenge to the development of an institutional repository. This finding agrees with the recent findings by Salau et al. (2020) that there was no specific policy for the management of electronic theses and dissertations in Nigerian library repositories. Similarly, the study by Bangani (2018) found that many of the institutional repositories in public universities in South Africa did not have their own open access policy. In the same vein, Gul et al. (2020) analysed institutional repositories in South Asia; they found that the majority had no defined content management policies. They add that the content management policies of institutional repositories in South Asia are not promising, and therefore call for administrators to look into this issue seriously so that content creation and management will have a well-defined structure.

Conclusion

From the analysis, the study found that the majority of the institutional repositories contain primarily theses and dissertations, followed by journal articles and conference and workshop papers. One of the greatest changes witnessed in African institutions today, like their counterparts in the developed world, has been the increase in and acceptance of open access to research data, study materials, and even artefacts and special collections from the African continent. This study therefore calls for other university libraries in Africa that are yet to establish an institutional repository to embrace such a development as an institutional repository saves space in the library, increases readership, increases access to local contents, minimizes damage to original materials, facilitates the dissemination of scholarly research, and promotes the global accessibility and visibility of research findings from African universities. This, in turn, will enhance university rankings in the African continent and world rankings.

The investigation of the institutional repository websites revealed that only a few institutional repositories have a clearly defined access policy, content policy, submission policy and digital preservation policy. Hence, it is important for university libraries that are intending to establish an institutional repository to consider what policy statements are relevant to guide the successful development and management of local content in the repository.

The study has identified challenges related to the establishment of an institutional repository, such as inadequate facilities, unstable Internet connectivity, a lack of funds, an irregular power supply, collecting material, a lack of skilled ICT personnel, copyright issues and the absence of institutional repository policies. Based on the challenges identified, it has become paramount for university libraries that are planning to establish an institutional repository to consider how to overcome such challenges. This can be done by libraries playing a leading role in organizing sensitization and awareness campaigns for faculty members, and having the political will to persuade management to see the reasons for providing the necessary facilities and support for the establishment of an institutional repository at the university. Institutional repositories have without doubt finally emerged as an increasingly important and integral part of an institution's infrastructure.

Based on these findings, the following recommendations are made:

- Other university libraries in Africa should make concerted efforts to begin the process of developing an institutional repository to showcase their rich intellectual output for global visibility and recognition.
- Adequate and appropriate ICT facilities, as well as Internet bandwidth, should be made available to harness the impact of the institutional repositories in the various universities in Africa.
- University libraries in Africa should form a consortium to boost the development of institutional repositories by sharing ideas, skilled ICT staff and certain facilities.
- University libraries that have developed institutional repositories should go further by making policies regarding content submission, access, self-archiving, preservation and metadata-harvesting standards.

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Appendix I
Online Questionnaire

Institutional repository development in universities in Africa questionnaire

1. Name of country: ______________________________
2. Name of university: ______________________________
3. What contents are used to develop your IR?

Contents used to develop IR	Available	Not available
Journal articles		
Theses and dissertations		
Conference and Workshop Papers.		
Books, Chapters and Sections		
Learning Objects		

Other, please specify: ______________________________

4. What are the benefits of developing institutional repository to the university, the library and to the author?

Benefits	Strongly Agree	Agree	Disagree	Strongly disagree
Improve university ranking				
Enhance postgraduate education				
Improve university visibility				
To the Library				
Save space in the library				
Increase readership				
Minimize damage to the original material				
Increase access to local contents				
To the author				
It facilitates the dissemination of scholarly research				
It assists in globalization of research findings				
It promotes international collaborations among researchers.				
It increases the research impact of authors				

5. Type of software used to manage content in the institutional repository.
What type of software is being used to manage content in your institutional repository?

IR software	Yes	No
EPrint		
DSpace		
Greenstone		

Others———————————————————————————— specify

6. Which of the following policy statements are available in your institutional repository?

Items	Available	Not available
Submission policy		
Content policy		
Preservation policy		
Copyright issues		

7. Challenges encountered in developing institutional repositories.

Challenges	Strongly agree	Agree	Strongly disagree	Disagree
Inadequate facilities				
Unstable internet connectivity				
Lack of fund				
Irregular power supply				
Challenge of collecting materials for the IR				
Lack of skilled ICT personnel				
Copyright issues				
Absence of IR policies				

Appendix 2

African universities in English-speaking countries that have developed institutional repositories

Serial number	Universities	Country	Size	Software	Year	IR Address
1	Botho University.	Botswana	86	DSpace	2016	http://repository.bothouniversity.ac.bw/buir
2	Botswana International University of Science and Technology	Botswana	290	DSpace	2020	http://repository.biust.ac.bw/
3	University of Botswana	Botswana	1108	DSpace	2009	http://www.ubrisa.ub.bw/
4	American University in Cairo	Egypt	4537	DSpace	2010	http://dar.aucegypt.edu/
5	British University in Egypt	Egypt	46	EPrint	2009	http://e-prints.bue.edu.eg/
6	Future University in Egypt	Egypt	975	DSpace	2019	http://repository.fue.edu.eg
7	Misr University for Science and Technology, Giza (MUST)	Egypt	189	DSpace	2019	http://dspace.must.edu.eg/
8	Addis Ababa University, Ethiopia.	Ethiopia.	8878	DSpace	2009	http://etd.aau.edu.et/
9	Haramaya University, Ethiopia	Ethiopia	209	DSpace	2019	http://institutional_repository. http://haramaya.edu.et
10	Ashesi University College, Ghana	Ghana	25	DSpace	2018	https://air.ashesi.edu.gh/
11	Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	5916	DSpace	2009	http://dspace.knust.edu.gh/
12	University for Development Studies	Ghana	844	DSpace	2015	http://www.udsspace.uds.edu.gh/
13	University of Cape Coast	Ghana	1391	DSpace	2013	http://ir.ucc.edu.gh/dspace/
14	University of Education, Winneba, Ghana	Ghana	67	DSpace	2020	http://ir.uew.edu.gh
15	University of Ghana	Ghana	9007	DSpace	2012	http://ugspace.ug.edu.gh/
16	Catholic University of Eastern Africa	Kenya	708	DSpace	2019	http://ir.cuea.edu/jspui/
17	Chuka University, Kenya	Kenya	760	DSpace	2019	http://repository.chuka.ac.ke
18	Dedan Kimathi University of Technology, Kenya	Kenya	537	DSpace	2013	http://repository.dkut.ac.ke:8080/xmlui/?Itemid=250/
19	Egerton University, Kenya	Kenya	885	DSpace	2016	http://ir-library.egerton.ac.ke/
20	Embu University, Kenya	Kenya	1467	DSpace	2015	http://repository.embuni.ac.ke/

(continued)

Appendix 2. (continued)

Serial number	Universities	Country	Size	Software	Year	IR Address
21	Jaramogi Oginga Odinga University of Science and Technology, Bondo (JOOUST	Kenya	790	DSpace	2019	http://ir.jooust.ac.ke
22	Jomo Kenyatta University of Agriculture and Technology (JKUAT).	Kenya	3627	DSpace	2013	http://ir.jkuat.ac.ke/
23	Kabarak University, Kenya	Kenya	906	DSpace	2019	http://ir.kabarak.ac.ke
24	Karatina University, Kenya	Kenya	334	DSpace	2015	https://karuspace.karu.ac.ke/
25	KCA University, Kenya	Kenya	138	DSpace	2015	http://41.89.49.13:8080/xmlui/
26	Kenya Methodist University	Kenya	905	DSpace	2018	http://repository.kemu.ac.ke:8080/xmlui
27	Kenyatta University	Kenya	300	DSpace	2012	http://ir-library.ku.ac.ke/
28	Kibabii University	Kenya	445	DSpace	2019	https://erepository.kibu.ac.ke
29	Kisii University	Kenya	171	DSpace	2015	http://library.kisiiuniversity.ac.ke:8080/xmlui
30	Maasai Mara University	Kenya	5249	DSpace	2016	http://41.89.101.166:8080/xmlui/
31	Machakos University	Kenya	1092	DSpace	2019	http://ir.mksu.ac.ke/
32	Masinde Muliro University of Science and Technology, Kenya	Kenya	147	DSpace	2019	http://ir-library.mmust.ac.ke/
33	Muranga University of Technology	Kenya	4222	DSpace	2017	http://repository.mut.ac.ke:8080/xmlui/
34	Moi University	Kenya	1000	DSpace	2015	http://ir.mu.ac.ke/
35	Mount Kenya University	Kenya	890	DSpace	2019	https://erepository.mku.ac.ke
36	Murang'a University of Technology	Kenya	786	DSpace	2019	http://repository.mut.ac.ke:8080/xmlui/
37	Pwani University	Kenya	374	DSpace	2013	https://elibrary.pu.ac.ke
38	Rongo University	Kenya	690	DSpace	2019	http://repository.rongovarsity.ac.ke
39	South Eastern Kenya University	Kenya	3764	DSpace	2015	http://repository.seku.ac.ke/
40	St. Paul's University	Kenya	650	DSpace	2017	http://41.89.51.173:8080/xmlui/
41	Strathmore University	Kenya	1933	DSpace	2012	https://su-plus.strathmore.edu/
42	Tangaza University	Kenya	779	DSpace	2019	http://repository.tangaza.ac.ke:8080/xmlui/
43	Technical University of Mombasa	Kenya	795	DSpace	2017	https://ir.tum.ac.ke
44	Technical University of Kenya	Kenya	873	DSpace	2015	http://repository.tukenya.ac.ke/
45	The Management University of Africa	Kenya	1821	EPrint	2015	http://repository.mua.ac.ke
46	United States International University - Africa	Kenya	3604	DSpace	2015	http://erepo.usiu.ac.ke/
47	University of Eldoret	Kenya	116	DSpace	2016	http://41.89.164.27:8080/xmlui
48	University of Nairobi	Kenya	84734	DSpace	2013	http://erepository.uonbi.ac.ke
49	Libyan International Medical University	Libya	129	DSpace	2019	http://repository.limu.edu.ly/

(continued)

Appendix 2. (continued)

Serial number	Universities	Country	Size	Software	Year	IR Address
50	Sebha University, Libya.	Libya	206	DSpace	2019	http://dspace.sebhau.edu.ly/
51	University of Tripoli, Libya.	Libya	97	DSpace	2019	http://oa.uot.edu.ly
52	University of Namibia	Namibia	1610	DSpace	2013	http://repository.unam.na/
53	Ahmadu Bello University, Zaria.	Nigeria	7970	DSpace	2013	http://kubanni.abu.edu.ng/jspui/
54	Afe Babalola University	Nigeria	454	EPrint	2017	http://eprints.abuad.edu.ng/
55	Ambrose Alli University Ekpoma	Nigeria	970	DSpace	2019	http://154.68.224.61:8080
56	American University of Nigeria (AUN)	Nigeria	1038	DSpace	2017	http://digitallibrary.aun.edu.ng:8080/xmlui/
57	Covenant University, Ota	Nigeria	8789	EPrint	2011	http://eprints.covenantuniversity.edu.ng/
58	Ebonyi State University	Nigeria	814	DSpace	2016	http://ir.ebsu.edu.ng:8080/xmlui/
59	Elizade University.	Nigeria	56	DSpace	2019	http://repository.elizadeuniversity.edu.ng
60	Federal University Dutsin-ma	Nigeria	716	DSpace	2019	http://dspace.fudutsinma.edu.ng/jspui/
61	Federal University Lokoja	Nigeria	89	DSpace	2016	http://repository.fulokoja.edu.ng/
62	Federal University Ndufu Alike-Ikwo	Nigeria	256	DSpace	2015	http://dspace.funai.edu.ng/
63	Federal University Oye Ekiti	Nigeria	1166	DSpace	2014	http://www.repository.fuoye.edu.ng/
64	Federal University of Technology, Minna	Nigeria	4454	DSpace	2016	http://dspace.futminna.edu.ng/jspui/
65	Federal University of Technology, Akure	Nigeria	2346	DSpace	2012	http://dspace.futa.edu.ng:8080/jspui/
66	Landmark University	Nigeria	2317	EPrint	2014	http://eprints.lmu.edu.ng/
67	University of Ibadan	Nigeria	2779	DSpace	2019	http://ir.library.ui.edu.ng/
68	University of Ilorin	Nigeria	59	DSpace	2020	http://uilspace.unilorin.edu.ng:8081/jspui
69	University of Jos	Nigeria	1837	DSpace	2009	http://irepos.unijos.edu.ng/jspui
70	University of Lagos	Nigeria	674	DSpace	2014	https://ir.unilag.edu.ng/
71	University of Nigeria Nsukka	Nigeria	23365	DSpace	2010	http://www.repository.unn.edu.ng
72	MKU Rwanda University	Rwanda	5141	DSpace	2017	http://repository.mkurwanda.ac.rw/
73	University of Rwanda	Rwanda	469	DSpace	2019	http://dr.ur.ac.rw/
74	Cape Peninsula University of Technology	South Africa.	2963	DSpace	2009	http://etd.cput.ac.za/ http://digitalknowledge.cput.ac.za/xmlui
75	Central University of Technology, Free State.	South Africa.	1329	DSpace	2015	http://ir.cut.ac.za/
76	Durban University of Technology, SA.	South Africa	2831	DSpace	2008	http://ir.dut.ac.za/ http://openscholar.dut.ac.za

(continued)

Appendix 2. (continued)

Serial number	Universities	Country	Size	Software	Year	IR Address
77	Nelson Mandela Metropolitan University	South Africa.	4098	DSpace	2015	http://vital.seals.ac.za:8080/vital/access/manager/index?site_name=Nelson%Mandela%20University
78	North-West University	South Africa.	12471	DSpace	2008	https://repository.nwu.ac.za https://dspace.nwu.ac.za/
79	Rhodes University	South Africa.	680	Figshare	2020	https://researchdata.ru.ac.za
80	Stellenbosch University	South Africa.	53004	DSpace	2006	http://scholar.sun.ac.za/ http://digital.lib.sun.ac.za/
81	Tshwane University of Technology	South Africa.	2733	ContentPro	2014	http://encore.tut.ac.za/iii/cpro
82	University of Cape Town	South Africa.	25689	EPrint	2006	http://open.uct.ac.za/ http://pubs.cs.uct.ac.za/
83	University of Fort Hare	South Africa.	446	DSpace	2010	http://ufh.netd.ac.za/
84	University of Johannesburg (UJ)	South Africa.	33062	DSpace	2008	http://etd.rau.ac.za/ https://ujdigispace.uj.ac.za/ https://ujcontent.uj.ac.za/vital/access/manager/Index
85	University of KwaZulu-Natal (UKZN)	South Africa.	551	DSpace	2009	http://researchspace.ukzn.ac.za/jspui/
86	University of Limpopo	South Africa.	1762	DSpace	2010	http://ul.netd.ac.za/ http://ulspace.ul.ac.za
87	University of Pretoria (UP)	South Africa.	50305	DSpace	2006	http://repository.up.ac.za/
88	University of South Africa (UNISA)	South Africa.	18163	DSpace	2009	http://uir.unisa.ac.za/
89	University of the Free State	South Africa.	7573	DSpace	2009	http://scholar.ufs.ac.za/ http://etd.uovs.ac.za/
90	University of the Western Cape	South Africa.	5552	DSpace	2007	http://etd.uwc.ac.za/xmlui/ http://repository.uwc.ac.za/xmlui/
91	University of the Witwatersrand, Johannesburg	South Africa.	17146	DSpace	2010	http://wiredspace.wits.ac.za/
92	University of Zululand	South Africa.	1249	DSpace	2014	http://library.unizulu.ac.za
93	Vaal University of Technology	South Africa.	185	DSpace	2012	http://vut.netd.ac.za/
94	Walter Sisulu University	South Africa.	15255	DSpace	2009	https://wsu.figshare.com http://vital.seals.ac.za:8080/vital/access/manager/Repository
95	University of Venda	South Africa.	2069	DSpace	2012	https://univendspace.univen.ac.za/
96	Al-Neelain University, Sudan	Sudan	10051	DSpace	2014	http://repository.neelain.edu.sd:8080/xmlui
97	International University of Africa, Sudan.	Sudan	3016	DSpace	2017	http://dspace.iua.edu.sd/
98	Nile University	Sudan	260	DSpace	2019	http://repository.nileuniversity-edu.com:8080/xmlui/

(continued)

Appendix 2. (continued)

Serial number	Universities	Country	Size	Software	Year	IR Address
99	Nile Valley University, Sudan	Sudan	449	DSpace	2019	http://dglib.nilevalley.edu.sd:8080/xmlui/
100	Red Sea University, Sudan.	Sudan	2714	DSpace	2015	http://repository.rsu.edu.sd/
101	Shendi University, Sudan.	Sudan	349	DSpace	2016	http://repository.ush.sd:8080/xmlui/
102	Sudan University of Science and Technology - SUST.	Sudan	18370	DSpace	2014	http://repository.sustech.edu
103	University of Khartoum	Sudan	8395	DSpace	2011	http://khartoumspace.uofk.edu
104	University of Science & Technology (UST), Sudan.	Sudan	227	DSpace	2020	http://repos.ust.edu.sd:8080/xmlui
105	University of the Holy Quran and Taseel	Sudan	78	DSpace	2020	http://lib.uofq.edu.sd/index.html
106	West Kordufan University, Sudan	Sudan	272	DSpace	2019	http://dspacewku.repository.edu.sd/
107	White Nile University, Sudan.	Sudan	379	DSpace	2016	http://repository.wnu.edu.sd:8080/xmlui/
108	Muhimbili University of Health and Allied Health Sciences (MUHAS), Tanzania.	Tanzania.	1781	DSpace	2012	http://dspace.muhas.ac.tz:8080/xmlui/
109	Mzumbe University, Tanzania	Tanzania.	1737	DSpace	2015	http://scholar.mzumbe.ac.tz/
110	Saint Augustine University of Tanzania (SAUT)	Tanzania.	311	DSpace	2013	http://41.93.33.43:8080/xmlui/
111	The State University of Zanzibar (SUZA), Tanzania.	Tanzania.	71	DSpace	2015	http://repository.suza.ac.tz:8080/xmlui/
112	Sokoine University of Agriculture, Tanzania	Tanzania	2152	DSpace	2015	http://www.suaire.sua.ac.tz
113	The Open University of Tanzania	Tanzania	2153	EPrint	2013	http://repository.out.ac.tz
114	University of Dar es Salaam, Tanzania.	Tanzania	4565	DSpace	2015	http://repository.udsm.ac.tz:8080/xmlui/
115	University of Dodoma, Tanzania	Tanzania	906	DSpace	2019	http://repository.udom.ac.tz/
116	Bishop Stuart University, Uganda.	Uganda	170	DSpace	2019	http://ir.bsu.ac.ug
117	Busitema University, Uganda	Uganda	398	DSpace	2019	http://ir.busitema.ac.ug/
118	Islamic University in Uganda (IUIU)	Uganda	609	DSpace	2019	https://ir.iuiu.ac.ug
119	Kampala International University.	Uganda	339	DSpace	2019	http://www.ir.kiu.ac.ug

(continued)

Appendix 2. (continued)

Serial number	Universities	Country	Size	Software	Year	IR Address
120	Makerere University Business School	Uganda	559	DSpace	2019	http://mubsir.mubs.ac.ug
121	Makerere University, Uganda	Uganda	564	DSpace	2007	http://makir.mak.ac.ug/
122	Mbarara University, Uganda.	Uganda	27	DSpace	2020	http://ir.must.ac.ug/
123	Muni University, Uganda	Uganda	90	DSpace	2019	http://dir.muni.ac.ug/
124	Uganda Christian University	Uganda	785	DSpace	2019	http://ucudir.ucu.ac.ug
125	Uganda Martyrs University	Uganda	233	DSpace	2019	http://ir.umu.ac.ug/
126	University of Zambia	Zambia	4910	DSpace	2013	http://dspace.unza.zm:8080/xmlui/
127	Bindura University of Science Education, Zimbabwe	Zimbabwe	394	DSpace	2013	https://ir.buse.ac.zw
128	Chinhoyi University of Technology, Zimbabwe	Zimbabwe	46	DSpace	2015	http://scholar.cut.ac.zw/
129	Lupane State University, Zimbabwe.	Zimbabwe	279	DSpace	2016	http://ir.lsu.ac.zw/
130	Midlands State University, Zimbabwe	Zimbabwe	2404	DSpace	2015	http://ir.msu.ac.zw:8080/xmlui/
131	National University of Science and Technology (NUST), Zimbabwe.	Zimbabwe	828	Greenstone	2012	http://ir.nust.ac.zw/
132	University of Zimbabwe	Zimbabwe	3055	DSpace	2010	http://ir.uz.ac.zw/
133	Zimbabwe Open University.	Zimbabwe	320	DSpace	2014	http://www.lis.zou.ac.zw:8080/dspace/

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Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

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Abstract

While scholarship in library science continues to expand understanding of collaboration and its potential to transform the collective collection, librarian acquisitions trips have been largely absent from the conversation. In early 2020, three US-based South Asian studies librarians traveled together to India, jettisoning solo travel in favor of a model of collaborative fieldwork. Using this trip as a case study, the authors draw on interdisciplinary literature to explore how intersecting identities and the embodied nature of fieldwork shape outcomes for the collective collection. They reflect on how foregrounding care in the field can converge with efforts to build more ethical collections. Finally, the authors consider the possibilities of a shift toward collaboration beyond mere coordination, and offer suggestions for how a relational perspective might be advocated for in their work. At the intersection of theory and practice, this article helps readers understand the holistic work behind area studies librarianship, and offers a vision of improved practice in the field.

Keywords

Academic libraries, area studies, Asia, collection development, critical perspectives, library and information science, fieldwork, South Asia, society, culture

Introduction

We saw a sign for the Adivasi Mela, a festival celebrating tribal communities in the Indian state of Odisha, that morning as we left Bhubaneswar (Adivasi Mela 2021, n.d.).[1] We had a full day planned: a conference at a nearby university, followed by a visit to a Muslim shrine in search of religious tracts and associated ephemera. The following day—our last in Odisha—would be spent seeking out temple literature in Konark and Puri. It seemed unlikely that we would make it to the Mela.

It was February 2020 and the three of us—a group of US-based South Asian studies librarians—were traveling together in India as an experiment in collaborative fieldwork. The idea for the trip grew from our desire to leverage our different and complementary strengths and needs vis-à-vis South Asian language skills, disciplinary expertise, and collection priorities; it was also in response to our disinclination to travel alone, stemming from our experiences of gendered vulnerability and chronic illness.

Late that evening, as we arrived back in Bhubaneswar, we saw the lights of the Mela stretching an entire city block. Previous experiences with solo travel had made us enamored of schedules and plans, and wary of activities taking place after dark. This time,

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however, we were not alone; departing from the schedule, and extending our hours of productivity well into the night in unvetted territory, suddenly seemed doable, and the last-minute offer by a local colleague to accompany us settled the matter. The hours we spent exploring the art and book stalls of tribal community and literary organizations would ultimately prove to be some of the most productive of our entire trip, resulting in unique purchases of materials by groups and in languages dramatically underrepresented in academic libraries. It was also emblematic of the broader logics and stakes of our experiment in collaborative fieldwork, which prioritized safeguarding our energy and well-being, and supporting each other's work by sharing both expertise and the burden of logistics.

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Scholarship in library and information science continues to expand our understanding of collaboration and its potential to transform the collective collection. Librarian acquisitions trips—a term we complicate below—have been largely absent from this conversation. South Asian studies librarianship in the USA has a robust history of collaborative practice when it comes to collection development. Nearly all US institutions with members on the Committee on South Asian Libraries and Documentation participate in the Library of Congress Cooperative Acquisitions Programs (e.g. the South Asia Cooperative Acquisitions Program), leveraging the efficiency and on-the-ground expertise of the field offices in New Delhi and Islamabad. Most of those institutions also participate in annual South Asia Cooperative Collection Development workshops, aimed at broadening and deepening the national collection by coordinating Library of Congress Cooperative Acquisitions Program monographic and serial profiles, creating print retention agreements, sharing vendor information, and declaring niche collection focuses (defined variously by language, region, topic, or material type). In addition, there have been important local and consortial collaborative collection-building efforts between institutions in the USA and Europe and South Asian partners.[2] Unlike for some of our colleagues in other area studies, however, travel to books fairs and other acquisitions trips are largely solitary affairs, lacking a history of coordination on the part of governments, book fairs, or our professional organizations.

Acquisitions trips, particularly for area studies librarians, are an essential supplement to more routine collection through approval plans and firm orders or catalog purchases. For India alone, the publishing landscape features more than 9000 publishers issuing over 90,000 publications per year, a mere fraction of which typically makes its way to academic libraries (Devasar, 2018). In addition to filling publishing gaps in our collections, acquisitions trips allow librarians to collect other types of print material that may reside outside of the prestige economy of scholarly and mainstream publishing—material that is of little interest or commercial value to vendors. Importantly, such material often represents marginalized or underrepresented viewpoints, which is a key consideration when thinking about how we might strive to create more ethical collections.

What do we mean by "ethical collections"? Ethical codes for librarians with regard to collection development generally emphasize conditions of collection and conditions of use, covering such things as vendor and donor relations, cultural property laws, user privacy and confidentiality, copyright and fair use, and access (American Library Association, 2021; Gregory, 2019; Morrisey, 2008). But questions of content do figure in the imperative to avoid censorship and to strive for fair and balanced collections. We see this as intersecting in important ways with recent work by libraries like the Massachusetts Institute of Technology to interrogate the role of collections in promoting diversity, equity, and inclusion, and with the American Library Association's (2021) adoption of a new code of ethics principle on racial and social justice (see also Baildon et al., 2017). Similarly, the Association of College and Research Libraries (ACRL) Code of Ethics for Special Collections Librarians specifically calls for "collection development policies that are sensitive to and begin to address historical gaps based on intersections of identity" (ACRL Code of Ethics for Special Collections Librarians, 2020). This is the kind of gaze that we are casting on our own collecting practices: Are we collecting a diversity of voices and viewpoints? Are we including the works of marginalized and underrepresented groups?

Codes of ethics may seem more urgent for special collections librarians, who are "caring for cultural property on behalf of the general population" (ACRL Code of Ethics for Special Collections Librarians, 2020). While much of the material we collect in area studies may not rise to the level of cultural property, the general collections we build can become formative in the field, with a profound impact on what is preserved, discovered, and used in scholarly research for generations. Indeed, what does it mean when some of the strongest collections of published material from and about South Asia reside in the Global North? And how might we think about remedy or redress? One important answer is to be found in the open-access movement, which aims to open up access to historical and contemporary collections to all users, regardless of institutional affiliation or national boundaries.[3] But keeping our attention focused on collection development practice, we are asking: In what way might the work that we do as area studies librarians reinforce or create new structures of power and inequality? What sorts of normative structures or theories are we carrying forward, often unwittingly, that owe a debt to a colonial past? How might these normative structures hinder our efforts to create more ethical collections?

In this article, we approach our collaborative travel not through the narrow lens of buying trips but through the more expansive lens of fieldwork. As we will argue, not only does this better represent the activities of area studies librarians' international travel, but it also allows us to consider our work within the broader social science literature on fieldwork, which renders more apparent some of the colonial origins and legacies of the fieldwork encounter. What has become clear to us is that our understandings of—and expectations around—fieldwork rest on the persistence—however implicit—of a particular normative subject. This subject is both demographic (the historical fieldworker of early anthropology—i.e. white, male, and European) and philosophical (the isolated individual of European social thought—i.e. the lone, heroic actor standing apart from society). With this normative subject come structures of value, where good fieldwork is defined as requiring, among other things, "solitude" and "danger"—two qualities that reinforce or prop up this image of the lone, heroic figure or, in our case, an idealized overseas collector. Not only is this normative subject a poor representation of actual fieldworkers (particularly in area studies librarianship, which represents some of the more diverse wings of the profession), but the structures of value it creates are also hostile to real live fieldworkers, inimical to collaboration, and, we argue, an impediment to ethical collecting.

To think beyond this normative subject and its structures of value, which we gloss as the hero narrative, we make two moves. The first is to draw on recent scholarship regarding the impact of intersecting identities in the field to analyze our own experiences. Being explicit about the researcher's social positioning (in terms of race, gender, citizenship, and other nexuses of power) is critical if we are to challenge scholarship's tendency to present the experience of dominant groups as universal. Accordingly, we offer as transparent a discussion as possible of how our identities, privileges, and vulnerabilities impact our experience and, ultimately, what we bring back from the field, broadly defined. Second, we turn to feminist and postcolonial scholarship to help us analyze our time in the field through the lens of care. What we find powerful about an ethics of care is its relational perspective. As we will discuss, an ethics of care represents a reframing of the moral encounter from that between isolated, rights-bearing individuals to that between people defined *in relationship*, bound by responsibilities both concrete and abstract. In what follows, we consider a kind of practical ethics of care that allows for more inclusive librarian fieldwork—fieldwork that is attentive to specific bodies and vulnerabilities. Not only is this model more inclusive, but, we argue, it is also more effective—particularly at promoting the collection of material that circulates outside of mainstream channels. This is critical if we hope to create a collective collection that does not simply put forward or enshrine dominant or official viewpoints.

Importantly, this move to care is not only practical, but also ideological. What happens when we remove the hero from his pride of place at the center of the narrative and foreground instead our relationships with each other? Taking this further, we ask how this may shift the stories that we tell about our collections and the broader, global webs of interdependence in which we operate, which include the often unrecognized (and unremunerated) labor of others. Inspired by the work of postcolonial scholars, we ask: What might it look like for area studies librarians to decenter the West? Finally, we consider some of the challenges and limitations of our model of care and collaboration, in terms of both uptake and effects. Despite the enthusiasm in the profession for collaborative practice, such practice operates alongside structures that continue to elevate and reward individual performance and institutional prestige. Without an accompanying shift to a relational perspective, we argue, collaboration is denuded of its progressive and emancipatory potential. Similarly, while we are inspired by the possibilities that relationality and care offer, we remain mindful of our positioning within broader, global structures of power. Replacing the hero narrative with a relational perspective may be necessary for challenging colonial structures, but we recognize that it is not sufficient. We view this research as the beginning of exploration, rather than arrival.

Trip overview

Our primary destinations were Pune, Kolkata, Bhubaneswar, and Delhi. The objectives and activities were similar in each of the cities. We visited notable commercial centers for book vendors, sought out specialized shops relating to our niche collecting interests, networked with colleagues, and visited cultural institutions and libraries. The specifics varied based on any holidays or political demonstrations that caused momentary disruption in transportation or business hours, participation in conferences and symposia, other special events such as the Kolkata Book Fair and Adivasi Mela, and the level of involvement of any local collaborators.

Some local colleagues had been given more advance notice or had more deeply established relationships with one or more of us and therefore spent more time with us, and some were available only by serendipity and fit us into their schedule as they could. In all cases, local colleagues and collaborators were invaluable in suggesting places to go, facilitating additional contacts, and generally making us feel welcome and helping us maximize productivity on the trip. The protection of human subjects prevents us from naming them, though we are deeply grateful for their expertise and generosity.

Overseas fieldwork in library and information science

The overseas acquisitions trip is one of the iconic hallmarks of area studies librarianship. Distinct from other types of fieldwork in the social sciences, overseas acquisitions trips are traditionally organized around acquiring materials to add to library or archival collections. Yet contemporary acquisitions trips go well beyond purchasing materials to include activities organized around providing access, identifying opportunities for collaboration, professional development, and relationship-building. This broader notion is evident in a 2016 statement endorsed by the heads of 25 area studies libraries in the USA, which states: "Be it interpreted as 'professional development' or 'fieldwork,' international travel is essential to the personal, professional, and institutional success of area studies librarians and their respective collection-building and engagement efforts" (International and Area Studies Collections, 2016).

Gray literature offers numerous examples of the breadth of activities undertaken by librarians in the field. For example, the Seminar on the Acquisition of Latin American Library Materials regularly shares blog posts in which members share their international travel experiences. Most recently, Jesús Alonso-Regalado (2020) shared his experiences of a trip to Cuba, where he not only attended a book fair to acquire books, but also built relationships with librarians and archivists in Cuba and learned from them about their perspectives on librarianship. In the field of South Asia librarianship, a 2013 Unique at Penn blog post by Pushkar Sohoni shared distinctive acquisitions that were only made possible by overseas acquisitions trips. Sohoni (2013) further stated: "Travel enhances an understanding of knowledge-generation in South Asia, and also how the 'authentic' sources of that knowledge are produced."

Given the variation in descriptions of the holistic nature of librarians' work overseas, we find Bestor et al.'s (2003) interdisciplinary definition of fieldwork helpful. They define fieldwork as "gathering information in situ: on site, non-experimentally, from and about human informants" (Bestor et al., 2003: 3). We expand on this definition in the context of library science to include those activities conducted in the field that support research, discovery, and access to information. As such, for the purposes of this article, we are characterizing the activities of our trip as fieldwork.

The last decade has seen minimal research on overseas fieldwork undertaken by librarians. Peer-reviewed works from 2003 share the experiences of 10 US-based librarians traveling as a group to the Hong Kong Book Fair (Atwill and Hickey, 2003) and one librarian traveling solo on a buying trip to Benin (Kistler, 2003). The value of these trips is reiterated in Thacker's (2017) article on the opportunities, challenges, and best practices in overseas buying trips to South Asia. Taken with the gray literature just mentioned, it becomes evident that the challenges of these overseas trips are region-specific. For example, trips for librarians traveling to South Asia are generally solitary and self-organized. Librarians must craft their own itineraries, book their own accommodation, coordinate flights and local transportation, set up meetings with vendors and colleagues in-country, and secure funding to support such trips, among other tasks. This stands in sharp contrast to the book fair in Hong Kong, as well as many of the trips organized to book fairs across Latin America, which are much more collective affairs—often there is logistical support and funding provided by local governments, external agencies, or the book fairs themselves for librarian travel and accommodation, which includes transportation between the book fair and designated hotels, planned programming and prescheduled meetings with vendors, and even cultural excursions.

Apart from the logistical challenges of traveling solo, South Asian Studies librarians face region-specific challenges that include things like uneven cell service within and between different cities, strikes and political disruption, difficulty accessing cash or currency, unexpected bank closures or empty automated teller machines (ATMs), unreliable or unsafe transportation, communication challenges due to a lack of language expertise, and even encounters with street dogs and other wildlife. For example, on this trip, we frequently found that one traveler's cell service might work in one neighborhood but not another, such that without the presence of a co-traveler we might have been stranded. While such conditions would affect any traveler, they pose an added challenge for solo travelers who do not present as male, particularly in areas with conflicting norms surrounding women's movement in public. Thacker's (2017) article on acquisitions trips calls specific attention to the challenges solo female travelers face in South Asia.

Challenges with traveling solo

In 2019, we began to talk about the possibility of traveling together overseas. Collectively, we have been studying South Asia and traveling to the region for more than three decades, including for language learning, research, library acquisitions, and family visits. Ranging from one week to nearly two years, at times living independently and at other times with host families or in-laws, these trips have allowed us to accrue significant expertise and experience in the region. They have also been characterized by numerous attempts on the part of well-meaning hosts and colleagues in South Asia, not to mention concerned parties at home, to place limits on our movements and activities out of concern for our safety. One of the challenges has been respecting the parameters that constitute the comfort zones of our hosts in South Asia while exercising the freedom of movement required to pursue our professional goals. At the same time, we have each accrued stories of solo travel during which we encountered unwanted or unanticipated attention, verbal and physical harassment and assault, medical peril, and mental health challenges, all of which led us to define the limits of our own comfort zones. Adhering to the self-imposed boundaries of our comfort zones may be conducive to a sense of safety, but it can have deleterious consequences—for example, limiting one's evening activities to what can be completed from the confines of a hotel room can lead to feelings of isolation, loneliness, and overwork. While the three of us—white women from US-based research universities—have shared these experiences in informal discussion, scholarship in library science has not fully considered how identity-based vulnerabilities—and privileges—may impact the outcomes of overseas field research. As such, we turn to scholarship in anthropology, sociology, and gender studies as an analytical framework for unpacking our own experiences.

There is broad recognition in the literature that the problem of sexual harassment and assault in field settings is "underreported," seen as a "touchy subject," or "uncomfortable conversation" (Clark and Grant, 2015; Howell, 1990: 94; Lee, 1995: 56). Drawing attention to gendered vulnerability has long been seen to imperil women's opportunities and freedom of movement in the field—and ongoing struggles to be accepted as the equals of their male colleagues (Howell, 1990; Lee, 1995; Moreno, 1995; Steffen, 2017). As Clark and Grant (2015) stress, gender-based vulnerability is hardly unique to the international field site—in fact, part of the silence surrounding the topic may stem from its sheer ubiquity in women's lives. Moreover, in postcolonial contexts, important and necessary efforts to disrupt or challenge the power dynamics inherent in the ethnographic encounter can make it difficult for scholars to acknowledge or deal with other forms of power, in which the researcher herself may be at risk. Indeed, considering the deeply problematic role of sexual desire and fear in colonial constructions of the Other, it is hard to find a language for expressing female fieldworkers' vulnerability that is not objectionably freighted.

In contrast to scholarship that isolates the impact of gender or other aspects of identity on overseas fieldwork, we rely on recent scholarship by Rebecca Hanson and Patricia Richards, which argues instead for

> embodied ethnography, ethnography that not only recognizes bodies as tools to get closer to the worlds of research participants but also takes seriously the presupposition that all data and knowledge emerge from experiences, conversations, and interactions shaped by the bodies that engage in them. (Hanson and Richards, 2019: 16).

Hanson and Richards resist what they call the three "ethnographic fixations" that pervade notions of good research, which include solitude, danger, and intimacy, and "encourage researchers to endure various forms of violence in the field" (2). During the trip, we repeatedly resisted the valorization of solitude, intimacy, and danger, and instead relied on mutual care for each other. We will talk about the theoretical underpinnings of care later in the article, but here we want to share the story of our experience of the Kolkata Book Fair as a model of the practical ethics of care that guided our co-travels.

The city's annual book fair and literary festival was one of the things that led us to include Kolkata on our itinerary. The fair brings together over 500 regional and local publishers, many of them small, independent, or not-for-profit organizations, making it an excellent place to find materials that may otherwise not come to our attention via library vendors (International Kolkata Book Fair, n.d.). That said, book fairs can be grueling, due to their sheer scale and attendant crowds, their often inconvenient suburban or ex-urban locations, and, in our case, our limited time frame—we had only one full day to devote to the fair.

Early that morning, armed with water bottles, snacks, and empty book bags, we piled into an Uber taxi for the hour-long ride. The previous evening, and again over breakfast, we had consulted the book fair guide and map and planned our day. We arrived and made our way to the first pavilion on our list—one devoted to small magazines and independent publications. The very first table yielded several items with high research value and, almost immediately, a collaborative strategy emerged. While one of us waited for the handwritten itemized receipt of our purchases (a lengthy process but necessary for reimbursement on our return), the other two would scout out the remaining tables in the pavilion, identifying publishers and materials of interest for the one left holding the bag, and occasionally using the linguistic expertise of one to support the collection development of the other.

As our packs filled at different rates, we periodically redistributed them to share the load, at times one of us sitting with the purchases while the other two bought food and drink, sought out ATMs, or scouted out next stops. Remaining attentive to each other's needs and physical and mental states meant that we paced ourselves and allowed for breaks, using the time to reflect on our acquisitions, refine and communicate about our collection priorities, and hone our strategies; this, along with our collaborative division of labor, allowed us to accomplish far more than we could have done on our own.

As evening fell, elated by a productive day at the book fair but physically depleted, we took one look at the row of ride-share cars stretching down the block and instead hailed a rickshaw to take us far enough away from the crowds that we could arrange an Uber—something we would not have contemplated were we alone. The rickshaw dropped us, with our packs, at the train station, where we were able to book a ride-share car. Traffic, the day's pollution, fatigue, and hunger all conspired to make for a challenging ride, which was mitigated by our mutual sharing of bottled water, granola bars, and emotional support.

Because we were flying to Odisha the next day, it was imperative that we ship our purchases to our vendor in Delhi (who would take care of the international leg of the shipment) that evening. Arriving outside our hotel, we had less than an hour before the nearby shipping office closed. We made our way to the office on foot, and slipped again into our accustomed collaborative practice. Two of us began the paperwork required for the shipments while the other exchanged dollars for rupees at the currency exchange next door (the nearby ATMs were empty, but one of us had ample dollars to exchange and lend to the other two, rendered temporarily cash-poor by the book fair).

In the end, we were successful; the packages were shipped, and we returned to our hotel to rest and prepare for the travel day ahead, all with minimal drama. A parallel version of this story—the more familiar heroic version—would have one of us alone, wandering crowded stalls, following booksellers into alleys, navigating close calls and near misses, all for the promise of knowledge or treasure. It is a narrative in which bodily limits and vulnerability have no place; it is also a distinctly *colonialist* narrative, in which "the risk-taking, intrepid, normatively white and male ethnographer is a star" (Huang, 2016).

Intersecting identities in the field

In an effort to counteract the notion of the normative fieldworker, we find Hanson and Richard's (2019) research on intersecting identities in the field particularly useful. They confront not only how gender impacts fieldwork but, importantly, also how it intersects with race, class, heteronormativity, and other structures of inequality. Such work resists "disembodied, colonialist, and androcentric research" by acknowledging how our physical presences in the field impact the data or, in our case, the materials that we return with (Hanson and Richards, 2019: 17). Moreover, such a position asks researchers for transparency and open discussion about how the particular intersecting identities that we bring to the field can produce both moments of privilege and the possibility of oppression.[4] Without a recognition of privilege, we risk casting off the figure of the lone, heroic, white male fieldworker only to replace it with three plucky white heroines.

For example, in the case of the Adivasi Mela with which we opened the article, we highlighted our gendered vulnerability and the ways in which traveling together empowered us to be spontaneous and take advantage of an unexpected opportunity outside of our carefully prepared itinerary. Yet it is the particular mix of our gender, race, socioeconomic status, citizenship (which allows us more freedom of movement in South Asia than most of our South Asian colleagues enjoy), and other identity indicators that puts us in a position to acquire the less commonly collected materials that we found at the Mela. Our roles as three white, American women librarians from prestigious US institutions provided us with the means and opportunity to travel to India and purchase materials. While our support of one another was critical, so in this instance was the support of a colleague in India, who provided both practical and intellectual guidance throughout.

The details of the story are important. We were in transit to participate in a university symposium when we noticed the large sign for the Adivasi Mela. In fact, we were traveling in a car that had been arranged by the university so that we need not worry about coordinating our own travel to the event. Moreover, the symposium organizers had dispatched one of their colleagues to come in the car to pick us up at our hotel, accompany us onto campus, and see us back to our accommodation at day’s end. It was in the context of our comfortable rides to and from the event that we expressed interest in visiting the Mela, and our colleague genially and generously offered to accompany us. When we arrived at the festival, we weaved through the crowds, browsing the stalls together and helping one another deftly sort through the materials available for purchase. Throughout, our companion waited patiently, occasionally lending his expertise to help us choose materials; his presence also created a sense of security and facilitated easy movement throughout the festival. Our minds were not consumed with whether we had mobile service to request transportation at night or with the possibility of negotiating with a driver to wait for us while we explored the festival. Instead, unfettered, we focused on the work of seeking relevant publications, the very ones that we have mentioned as among the valuable outcomes of such collaborative trips.

As this story demonstrates, gendered vulnerability can intersect with our identities as foreigners in postcolonial South Asia in such a way that we experience frustration and limited freedom of movement (as previously described in relation to solo travel), but it can also manifest as abundant hospitality and concern given by our colleagues during the trip. In the second manifestation, we benefit professionally and our collections benefit too. An important outcome of the trip has been unpacking the relationship between our privilege in the field and how we can make awareness and “redress of historical and present injustices,” which is central to the work that we conduct when we return to our home institutions (Agostinho, 2020: 81). In the case of the symposium and Mela, we can choose to resist the potential to elide the critical and meaningful contributions of local colleagues, interlocutors, and guides who supported our work overseas, and instead take Hanson and Richards’ (2019) call for transparency seriously, by centering their roles when we narrate our experiences in the field.[5] We can also strengthen the connections made during fieldwork by continuing to collaborate with our colleagues in South Asia to increase discovery of materials in the regional language and to use our own professional contacts to support events and initiatives that are part of their own professional goals. In this model, we seek a relationship of greater reciprocity rather than one of uneven and often unidirectional benefit.

Relationality and a postcolonial ethics of care

Area studies librarians are increasingly called on to examine their collecting practices in conversation with a growing body of literature on decolonization, indigenization, and postcolonial studies. One particularly fruitful approach in the library and archives literature on decolonization has been the adoption of an “ethics of care” framework, which builds on the foundational work of Carol Gilligan and her feminist framing of an ethic of care as a challenge to dominant western narratives of moral development (Gilligan, 1982). Such narratives cast individual rights, universal laws, and abstract notions of justice as the height of ethical reasoning. An ethic of care recognizes and creates space for connectedness, relational responsibility, and contextual reasoning—a perspective often denigrated as “feminine.” This relational approach not only reframes the ethical encounter, but also poses a challenge to the normative subject of the hero narrative—the autonomous actor unencumbered by webs of dependency.

While this ethic of care has been criticized as essentializing maternal or feminine ways of being, as well as universalizing white middle-class women’s experience (in which care is a private, unremunerated activity), it has also been criticized for obscuring the entanglement of care in colonial violence and the racialized system of global care work. A discourse of care, in which European colonizers “had paternalistic obligations and responsibilities to ‘inferior Others,’” was used to justify colonial domination (Narayan, 1995: 135); at the same time, actual care work by colonized women, as with other forms of colonial labor, was effaced and subsumed by a triumphalist narrative of colonial capitalism (Mooten, 2005).

Because of its imbrication with colonial and neocolonial projects, some scholars have viewed care as incompatible with postcolonial ethical imaginaries, while others have tried to bring both frames together (Agostinho, 2020; Mooten, 2005). For example, Mooten (2005: 10) likens the emphasis on relationality in the postcolonial ethical theory of Gayatri Spivak to the relational moral ontology of a feminist ethics of care. In our own readings, we have been inspired by the work of Achille Mbembe (2019), whose notions of entanglement and "disenclosure" have deeply influenced our understanding of care ethics, especially in postcolonial contexts. While some approaches to decolonization look to restore or recover a precolonial past, Mbembe is decidedly oriented toward the future—a future in which the fates of Europe and its former colonies are inextricably intertwined. Mbembe envisions this future as a collaborative venture—the work of an entangled planet—and, importantly, one in which the West is not the center of the world.

In addition to his future orientation, we are inspired by Mbembe's relational perspective, including his insistence on the narrative displacement of the West from its imagined place at the center of the world. Mbembe uses the term "disenclosure" to signal an alternative to the isolated self or subject at the heart of western social thought. He writes:

> disenclosure consists precisely in going forward to meet the world, and in being able to embrace the inextricable web of affiliations that form our identities and the interlacing of networks that make every identity necessarily extend out in relation to the Other—an Other always there, from the outset. (Mbembe, 2019: 64)

Mbembe describes this work as "a *praxis* of putting in relation" (64)—work that decenters both the self and the West.

In addition to decentering the West, a postcolonial ethics of care forces us to acknowledge, as Agostinho (2019) suggests, our inescapable positioning within historical and ongoing systems of oppression; it requires, to use Mbembe's (2019: 161) term, "a capacity for truth." Agostinho (2019: 161) writes: "through the prism of postcolonial critiques, care can move beyond an act of feeling good or doing good to become more committed to a profound transformation of power relations in the long term." Moreover, Mbembe (2019: 161) writes: "every authentic politics of restitution is inseparable from a capacity for truth, such that honoring truth and acts of repairing the world become, by the same token, the essential foundation of a new connection and a new relationship." We think that this is a powerful starting point for examining library practice through the lens of an ethics of care in a postcolonial context.

Practically speaking, then, an ethics of care that is relational and entangled would mean examining not only possibilities for repatriation; it would also mean examining an entire library infrastructure that centers the needs of the West, with an eye toward reparation. For example, in open-access initiatives, which we see as important modalities for digital repatriation, a relational perspective requires recognizing that open access is not a neutral position; nor are any of the decisions (small or large) that are made in constructing a digital project. The factors that underpin decision-making—or impact access—may include the complexities attendant to working with multilingual projects, unequal digital infrastructures, inadequate or ethnocentric metadata, complex questions of copyright, incommensurate experiences of colonialism that require different approaches to engaging with archival material, and others (Biswas, 2018; Michelson-Ambelang, 2022; Thorat, 2019).

These considerations were driven home through our meetings with various research institutes and libraries during the trip. As members of the South Asia Open Archives, a multinational collaborative project under the Center for Research Libraries in the USA, one objective of the trip was to identify opportunities for collaboration or building new partnerships with South Asian institutions, including identifying materials to ingest or digitize for inclusion in the Archives. In one such meeting, it became clear early in the conversation that this institute's own well-developed digitization program and priorities may not benefit from a push to free and open access. Coming from institutional contexts in the USA, many of which have the funding flexibility to support open-access projects, it is easy to forget that some institutions may rely on revenue from their digital assets and programming in order to sustain the important work of preservation and content creation.

Rather than a move to solidify partnerships, what ensued instead in this particular meeting was a rich exchange about our respective digital projects, and any preconceived agenda was abandoned in favor of a freewheeling conversation with like-minded professionals about areas of mutual interest. One area of shared interest and importance was the challenge of discovery for South Asian materials, and the quandaries of transliteration versus original script metadata. Often, the cost of collaboration for South Asian partners is capitulation to Euro-American-based library conventions, which in the case of metadata and discovery means pressure to conform to the Library of Congress Romanization schemas. Shared curiosity about discovery challenges for digital projects underscored the need to work together to attend to the creation of more elastic library systems that can mediate between different metadata standards, as well as include South Asian languages in original script for both metadata and the presentation of digital holdings.

Rethinking collaboration

Thus far, we have discussed how dismantling the hero model creates space for vulnerability in the field. By resisting solitude and danger, we expand our field of action, allowing us to diversify our collecting practices and deepen our engagements with our colleagues in South Asia. In this final section, we explore how the hero model undermines professional commitments to collaboration, to the detriment of the collective collection. To unpack this, we want to be explicit about our understanding of collaboration in the profession and its relationship to the collective collection.

"Collaboration" is a familiar term in library literature and practice, generally presented as one of many tools in a librarian's (or administrator's) tool kit. It can be recruited to maximize efficiency or enable cost savings (to do more with less) or, from a more progressive standpoint, to achieve things that cannot be achieved in isolation—for example, coordinating individual institutional purchases in order to broaden and deepen the national collection. This latter model exemplifies our own thinking about the collective collection, which is defined by Lavoie et al. as "the combined collections of two or more institutions, viewed as a single, distinct resource, usually through aggregation and analysis of metadata about the collections" (Lavoie et al., 2020: 982). For South Asian Studies, there have been a number of efforts to balance autonomous collecting with a vision for the collective collection, including coordinating approval plans and serial profiles, documenting niche collections, and discussing possibilities for cooperative cataloging, print retention, and more.[6] The very notion of a collective collection is premised on shared systems of interlibrary loan, discovery, and retention, such that, in theory, individual institutional ownership of a resource is no longer required for access. Such an interdependent model depends on a deep degree of trust among colleagues (Jakubs, 2015). Indeed, the Big Ten Academic Alliance uses the term "sticky interdependence" in its 2019 call for libraries to "move away from a mind-set of independent libraries, motivated by self-interest, cooperating only sometimes" (Ellis, 2019).

We are heartened by this call, which seems to support the kind of decentering that we have described as pivotal to relationality and a postcolonial ethics of care. Nevertheless, there is a pronounced tension between the collective and the individual on a structural level. The enthusiasm in the profession for various forms of collaboration has not diminished the imperative to build collections of prestige for individual institutions, whether measured by collection strength or distinctiveness. This structural tension perpetuates the fetishization of (individual) ownership, encourages competition for resources, and ultimately is a barrier to genuine collaboration. Moreover, the mandate to create a collection of distinction for one's own institution is part and parcel of the apparatus of meritocracy (e.g. performance evaluations, promotion processes, and pay raises), an apparatus that can only be navigated as an individual. This is not to disparage institutional priorities or individual initiative, but rather to acknowledge the structural factors that work against the collaborative "mind-set" we are called on to embrace.

In reflecting on our experiment with collaborative fieldwork, we are asking how far we might push the imperative of collaboration, in full knowledge of the structural tensions between the individual and the collective. Whether we are collecting as individuals or collaboratively, adopting a relational perspective requires us to acknowledge our embeddedness in a web of interdependencies. This is an epistemic shift—not just a change in practice, but also a change in the way we understand our own work and our labors, as always already shaped, underwritten, and enabled by the labor—the co-labor—of others. We are only beginning to imagine how potentially powerful and transformative such a shift might be, and the role it could play in our efforts to build more ethical collections. What is already clear, however, is how very difficult this work of decentering is—how hard a model the hero is to resist.

While we had discussed some of our collection priorities in advance (particularly around our niche collections), the model of collaboration that we honed throughout the trip happened iteratively. Perhaps none of us worried too much ahead of time that we would want the same items as we wandered through various bookstalls, yet that is exactly what happened on the first day that two of us ventured out in Pune. We browsed the shelves with a colleague from a local research institution, who had offered to introduce us to an area of the city clustered with publishers. While there, we came across a political pamphlet of great contemporary interest, on a topic that has traction at both of our institutions and is just the kind of minor publication that is tough to acquire via mainstream channels. When we expressed interest in purchasing it, the question immediately came up about whether there was another copy. Alas, no. Somewhat uncomfortably, we made our way to the counter, where one of us purchased the item. Reflecting in the hours afterward, we realized that the discomfort of this experience was a signal of how much we had internalized what constitutes normative overseas collection work—the fetishization of ownership, the quest for treasure, the glory that is promised with a really great find. Aside from positive professional outcomes tied to the apparatus of meritocracy—promotion, job security, garnering support for future funding of overseas fieldwork—there is also the imperative to demonstrate support for scholarly work at our respective institutions. Examining how these structural factors can impact our emotions when we find a single copy of a publication or other item, and understanding the same about one's traveling companions, is essential to building the professional trust and understanding that is a prerequisite to collaborative trips.

In order to thrive, and frankly enjoy, the coming weeks, we would need to have clearer communication and a good strategy for dealing with similar situations in the future. We made our way back to our accommodation at the end of the day and decided to sit together to document our institutional priorities in greater detail, to identify areas of overlap, and to make a plan for deciding who would purchase items with limited copies. Moreover, we began to think about access and discovery of these materials, and creative strategies for accessing the unique and meaningful finds that may end up at an institution other than one's own. This practice of forthright communication and documentation had intended and unintended outcomes. It gave us far greater knowledge of what was important at our respective institutions, and why. This meant that the next time we went out, we started to organically identify items that might not be a good fit for our own institutions but would be great for that of one of our traveling companions, and vice versa. This added tremendous value to the trip as it became clear that each of our collections was benefiting from the expertise and knowledge of three librarians instead of one. The practice of open communication and documentation also cleared the air and preserved a spirit of camaraderie and collegiality amongst ourselves. We created a plan so that if we ended up in a similar situation, the librarian whose collection was most in need or whose collection already had a major focus would purchase the item. We also discussed whether items would be available via interlibrary loan or digital format once back from the trip. This liberated us from a spirit of competition and replaced it with a spirit of generosity. Along the way, we all experienced moments when we benefited from this arrangement and moments when we had to be gracious and content with not getting everything that we wanted. In fact, integral to the success of this kind of collaborative work is the yielding.

Even in cases where collecting priorities did not overlap, for example with our niche collections, the spirit of generosity, care, and professional trust had benefits. Support for each other's collecting interests allowed us to find and acquire items on topics, in formats, and by communities that are less commonly available in our national collection. All three of us came back from the trip with unique items that we were not likely to have acquired had we not chosen to deviate from the "disembodied, colonialist, and androcentric" model of overseas acquisitions in favor of an ethic of care model. For example, finding the precise location for off-the-beaten-track bookstores in South Asia can be a challenge. When looking for a small Islamic bookstall, we walked the neighborhood together until we stumbled on the shop down a small alley. We agreed that we would have given up sooner if we hadn't had a co-traveler along to explore an unfamiliar place. Similarly, when two of us were exploring Pune, one of us was able to begin building a South Asian erotica collection in no small part due to the support, energy, and encouragement of the other. Having a co-traveler to act as encouragement when asking about sensitive materials provided both legitimacy and empowerment to pursue related purchases. One of us was also able to share some of her experience with unique and ephemeral materials to give the other some ideas to bring to her technical services colleagues about processing these materials.

Reflecting on these experiences, we recognize how much greater a commitment the act of collaborative fieldwork was than simply traveling together, or co-presence. Without a practice of consistently placing one's own needs in relation to another, collaboration is reduced to mere coordination. To put it another way, the shift to a relational perspective is never complete; it unfolds each time we come to decision points that put our singular and collective imperatives at odds. This is not simply a matter of enacting goodwill; it is a complex navigation of structural antagonisms. It requires us to note our own vulnerabilities in the field, to center the work of others, and to not simply pursue but also yield in our attempts to develop the collective collection. Ultimately, however, resisting the hero model cannot solely be the work of the individual (which, in fact, risks reifying the very model we are attempting to counteract). Without an accompanying *structural* shift to a model of care, collaboration risks being stripped of its progressive and emancipatory potential.

Conclusion

This article is an analysis of our collaborative fieldwork in India as three US-based South Asian studies librarians. What began as an effort to pool our varied expertise, share the burden of logistics, and mitigate risk evolved into new ways of thinking about fieldwork and collaboration. The care that we extended to each other as we navigated our work overseas included shared responsibility for planning and executing the activities on the trip, providing emotional support and enthusiasm when needed, exercising our own linguistic and disciplinary strengths to aid in the efficient and competent selection of materials, and, importantly, yielding our own needs on occasion in order to support the well-being of a co-traveler. The yielding that we practiced amongst ourselves became integral to our exchanges with colleagues in South Asia too, as we sought to listen, learn, and center the concerns related to their projects and perspectives on librarianship. Thinking about our trip, we also had occasion to notice and reflect on the stories that we tell about our work. In contrast to narratives that feature the adventures of the lone heroic fieldworker, we openly discussed our vulnerabilities and privileges in the field, and noted moments where there was a tendency to gloss over the labor of our colleagues. As we carry this work forward, we recognize that centering the labor and co-labor of colleagues overseas is critical to the work of creating ethical collections, both as content—the voices we put forward or elide—and as practice.

But even as we strive to create more ethical collections, we do so in conditions of fracture—of global inequality, national and institutional politics, socioeconomic disparities, and even personality conflicts. Approaching this through a lens of care does not presuppose harmony or lack of fracture; this is not a non-political space or a rejection of politics. As Agostinho (2019) reminds us, the heuristic power of care lies precisely in its non-innocent histories. It requires us to acknowledge the ways in which we continue to reinscribe dominant and colonialist narratives, and that the work of resistance is ongoing. Connecting feminist and postcolonial theory to our practices in the field allows us to understand the structural barriers that compromise the potential for collaboration and to consider how we might push against them. Moving forward, we can advocate within the profession to more readily recognize and reward collective action and care over individual performance. We can promote a more expansive understanding of the collective collection to better center the work of our colleagues in South Asia who are creating research resources for the area. We can reexamine the structures of academic libraries that create barriers to collaboration outside the Global North, which may include prohibitive bureaucratic processes or inflexible knowledge organization systems, among other things. Finally, thinking beyond the library, we can be aware of and sensitive to *community*-based archiving needs and initiatives that operate outside of—and, in fact, decenter—the academy. Taken together, this is the collective that comprises our entangled future. It is hard for us to imagine how one can care for the collective collection without care for the collective.

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Notes

1. The Adivasi Mela is organized by the Scheduled Tribes and Scheduled Castes Development Department of the Government of Odisha and features tribal communities from the region.
2. For examples, see Nye and Magier's (1999) article "International information exchange: New configurations for library collaboration in South Asian studies."
3. Examples of open-access resources for South Asian studies include: South Asia Open Archives (https://t.co/ukjnDjKJr4); the Lahore University of Management Sciences Digital Archive (https://archive.lums.edu.pk/); the National Digital Library of India (https://ndl.iitkgp.ac.in/); and the British Library's Endangered Archives Programme (http://eap.bl.uk/search).
4. Our use of the term "intersecting identities" differs from the notion of "intersectionality," a concept developed by black feminist scholar Kimberlé Crenshaw (1989) to identify the multilayered nature of oppression.
5. We find ourselves in the awkward position of wanting to center the work of our colleagues but being unable to name them in this publication for ethical reasons around privacy and informed consent. Even in the interest of recognition, naming can cause harm. What we have to do is commit to recognizing and promoting the work of our colleagues on their terms, when it serves their goals—not when it serves ours.
6. These efforts take place under the auspices of an annual South Asia Cooperative Collection Development Workshop. Documentation about these workshops and their outcomes is available at: https://guides.lib.utexas.edu/sacoop

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Croatian adolescents' credibility judgments in making everyday life decisions

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Abstract
The objective of this study was to investigate how high school students judged the credibility of information obtained for help with making everyday life decisions. Semi-structured individual interviews were carried out to reveal what reasons lay behind their belief in the quality, accuracy and helpfulness of the information. The results reveal that the students preferred turning to interpersonal information sources. The information obtained was perceived to be credible in cases when the source had been characterized with attributes that expressed competence and trustworthiness (such as expertise, knowledge and precision). Other important indicators of information credibility in cases of interpersonal information sources were the characteristics that expressed personal trust and the quality of the relationship with the source. Information on social media was judged by socially generated cues that expressed reputation and popularity in the users' community. Lastly, credibility was verified by checking the consistency of information from multiple sources.

Keywords
Credibility judgments, credibility evaluation, information literacy, everyday life information-seeking, high school students, adolescents

Introduction

Being in a continuous everyday interaction with information, young people constantly acquire and use that information to manage their everyday life situations. Information is used to function across contexts including schooling, social life, entertainment, health and diet. The acquired information can give a clearer picture and contribute to a better understanding of the situation at hand, and is potentially helpful in dealing with daily situations. However, depending on its quality, it can also have a negative impact on the way a young person manages their matters. Today's confusing environment is oversaturated with information, and the times we live in are perhaps the worst they have ever been for making choices. Young people acquire information in both an intentional and unintentional manner from a wide spectrum of sources of varying credibility: other people (e.g. teachers, parents, friends and peers), online sources (including websites and social media) and formal sources (such as books and libraries). Much of their interaction with information takes place on the mobile Web and across social media platforms (Bashir et al., 2021), putting them at risk of getting lost in the cacophony of user comments. Studies carried out over the last two decades show that young people are not sophisticated information consumers who seek, evaluate and use information effectively (Agosto, 2002; Flanagin and Metzger, 2008, 2010; Hargittai, 2010; Metzger et al., 2015; Rowlands et al., 2008; Todd, 2003). More recent studies of youth information behaviour from the era of smartphones and social media echo the previous work, showing that the speed of searches and rapid assessment of information credibility continue to mark young people's interaction with information, which is perhaps boosted by the affordances of mobile technology (Bowler et al., 2018).

In such circumstances, information professionals such as librarians need to pursue their traditional role

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of information educators and empower young information users to navigate the complex information environment successfully. To do so, they first need to explore and understand how young people interact with information and decide whether the obtained information can be trusted.

This article presents the results of a study that sought to gain an understanding of adolescents' credibility judgments in interactions with information while making decisions in everyday life. The aim was to find out how adolescents judged the credibility of information acquired from diverse information sources to help in making decisions. The study is part of a larger work that was carried out as part of a doctoral dissertation (Kolarić, 2021). The interpretation of the results has been expanded by comparison with an updated and wider range of research. The study was carried out in the city of Rijeka, Croatia, from 2018 to 2020.

Theoretical background

The time of adolescence is accompanied by increasing autonomy, which includes the growing ability and responsibility to make one's own decisions (Kaplan, 2004: 13–24). Everyday life decisions arise from situations in various areas of life including one's education and career, social life, relations to other people, health (e.g. reproductive health), nutrition and leisure-time activities. It is assumed that having appropriate information helps one to make informed decisions, resulting in better outcomes.

Savolainen's (1995) 'everyday life information seeking (ELIS)' concept explains how people seek and use information to manage their daily activities by solving problems and orienting themselves in everyday life. In dealing with life matters, people constantly make choices, such as whether to take a bus or walk home, or what smartphone to buy. Getting informed about the conditions of the situation at hand increases people's capacities to make sound choices. Therefore, all human activities are affected by the ways people seek, evaluate and use information (Savolainen, 2008: 1). As we live in a time of an abundance of information, people's ability to find, assess and use information that is credible and supports better choices is essential.

Credibility assessment is a common human activity and an ongoing process as people constantly seek, evaluate and use numerous and diverse types of information. This evaluative process is highly subjective and depends on one's knowledge and experience (Rieh, 2010: 1337). The two main dimensions of credibility are trustworthiness and expertise (Wilson, 1983: 15), while credible information comes from information sources that are perceived as both highly competent and trustworthy (Rieh, 2010: 1338). The competence of a source refers to the perceived knowledge, expertise, skill, experience and ability of the source to inform accurately, while trustworthiness refers to the perceived honesty, goodness, morality and absence of the desire to deceive (Rieh, 2010: 1338; Wilson, 1983: 15). However, the two dimensions of credibility do not necessarily come together: an information source can be trustworthy but not competent, and vice versa. The credibility of information and information sources is usually expressed by the attributes of believability, trustworthiness, fairness, accuracy, trustfulness, factuality, completeness, precision, freedom from bias, objectivity, depth and informativeness (Rieh, 2010; Savolainen, 2008).

Literature review

A substantial body of research has sought to gain an understanding of how youth judge the credibility of information, although most studies have dealt with college students and less with younger children and teenagers (Metzger et al., 2015: 329). The ways in which youth judge credibility vary across the population, depending on factors such as young individuals' cognitive development, decision-making style, demographic background and previous digital information literacy training (Metzger et al., 2015: 325). Youth from disadvantaged backgrounds face specific challenges when performing evaluative processes (e.g. difficulties caused by a limited English-language vocabulary), showing that specific living conditions influence their information evaluation practices (Subramaniam et al., 2015). It has been shown that age and developmental attributes also influence credibility evaluation processes. As they mature, children and young adults become more effective in judging information credibility and more sophisticated information consumers (Flanagin and Metzger, 2010; Metzger et al., 2015; Salmerón et al., 2016).

Some studies carried out among college students and young adults show that the most important credibility judgment criteria are the author's expertise, experience and ability to provide verified information. They trust sources who are perceived as trustworthy, educated and experienced, and as experts and professionals (Kolarić et al., 2021; Quaidoo et al., 2018). In a specific context such as health, empathy is added to this dimension of credibility as it is important to individuals who need health information (Gray et al., 2005). Moreover, college students employ some specific information-seeking strategies to deal with concerns related to the credibility of online information (Fergie et al., 2013; Rieh and Hilligoss, 2008). One of these strategies is to verify the credibility of the information by checking the consistency of information from multiple sources– for example, comparing it with information from other websites (Kolarić et al., 2021; Rieh and Hilligoss, 2008).

However, it seems that young people often have suboptimal information literacy skills and show deficiencies in information-consumption behaviour, often overestimating their information- seeking and information-using skills (Flanagin and Metzger, 2008, 2010; Metzger et al., 2015). This comes as no surprise as the evaluation of the mixed-quality information available online is challenging for anyone, and especially for young people, whose developmentally influenced abilities, limited general knowledge and experience, and lack of critical literacy skills can decrease their capacity to judge information credibility (Flanagin and Metzger, 2008; Subramanian et al., 2015). Despite their self-confidence, youth are prone to performing less cognitively demanding and rigorous evaluating processes, using heuristics such as asking other people for a piece of advice or making choices based on feelings (Flanagin and Metzger, 2010: 64), basing evaluative judgments on brand indicators and reputation (Rowley et al., 2015), or relying on socially generated credibility cues in social media, such as a likes-to-dislikes ratio or other users' comments (Fergie et al., 2013).

Overall, we can conclude that youth information judgment practices vary across the population and depend on various factors. This has serious implications for information literacy education as it warns against one-size-fits-all training programmes and argues for more context-sensitive efforts, adjusted to the specific needs of the target group.

Research goal

The purpose of the part of the research presented here was to understand adolescents' credibility judgments as part of interactions with information while making decisions in everyday life. Specifically, the aim was to answer the following research question: How do adolescents judge the credibility of information acquired from diverse information sources to help in making decisions?

Methodology

The study was crafted within an interpretative paradigm, seeking to understand the meanings that young people construct around information interaction events and activities. It was carried out in the city of Rijeka, Croatia, in a high school setting. This type of school offers secondary education, which follows primary education in the Croatian education system and typically includes children aged 14 to 19.

The research was conducted in three high schools– a grammar school, an art school and a vocational school, representing three types of high school in the Croatian education system. This was done to capture a diversity of voices, as it was assumed that participants from different types of school might offer different answers. The sampling was non-representative and purposive.

The data was collected through 18 semi-structured individual interviews with 18 students: 11 girls and 7 boys aged 17 to 19. The individual interview method was chosen because it includes open-ended questions and allowed for a deeper examination of the participants' interaction with information. The instrument was built around the personal disclosure strategy and life-centred line of questioning, as recommended by Shenton and Dixon (2004), who argue that this approach is suitable for the investigation of young people's information needs. The belief that the same methodological approach would be suitable for the investigation of young people's interactions with information, including credibility assessment procedures, was vindicated as the research process yielded rich and valuable data. The interviews were carried out until the point of saturation was reached.

The interview questions were open-ended and formulated to steer the discussion in the desired direction. With the purpose of learning about their everyday life decisions and related information behaviour, the participants were asked to recall some of the decisions they had made during the school year, using a life-centred line of questioning (Shenton and Dixon, 2004).

The term 'credibility' was not used in the interview questions as the students might not have understood it fully. Following the research experience of Rieh and Belkin (2000), the term 'credibility' was operationalized by using the terms 'good' and 'accurate' information that 'may help with the decision'. It was done because the researcher believed that when seeking information, a person believes that good and accurate information may be helpful. The students were asked whether they believed that the information was good, accurate, useful and helpful in the context of the discussed decision in order to collect data on the criteria they used to judge the credibility of the acquired information. An additional question ('What makes you think so?') was posed to prompt them to elaborate further on their answers.

The interviews were audio-recorded, and the recordings were transcribed within a day or two. The collected data was subjected to qualitative content analysis using MAXQDA software. Finally, the approval of the University of Zadar's ethics committee and the parents' or caregivers' written consent for conducting research involving underage students were obtained to meet the ethical requirements and standards. The participants were approached by gatekeepers such as school librarians and teachers, and participated in the research process voluntarily. The data was anonymized to protect the participants' privacy.

Results

The data reveals what information sources the students used for help with making everyday life decisions and how they judged the credibility of the acquired information. It shows that the students who participated in the study sought helpful information from a variety of information sources but predominantly from interpersonal sources (family members, friends and peers, and people with experience and knowledge in the domain of the decision, such as a physician) and sources that were available online on the Internet (the Google search engine, websites and social media). Traditional information sources were barely mentioned, including the library. Despite being immersed in a digital information environment, the students expressed a preference for consulting other people as a source of helpful information (Kolarić, 2021: 163–164). The data showes that they judged credibility in different ways: by basing their judgments on the perceived characteristics of the sources that provided the information, and by additional search and comparison to the information gathered from multiple sources.

In many cases, the students based their credibility judgments on the belief that some specific characteristics of the information sources made the sources credible and were crucial for the provision of credible information of good quality. During the process of data analysis, the criteria that the participants reported using for judging the credibility of information were divided into two groups. The first encompassed the criteria that correspond with the two main components of credibility: competence in an area and trustworthiness. The second encompassed the criteria that do not relate to the traditional understanding of credibility. This group included criteria that refer to some characteristics of interpersonal information, such as personal trust and the quality of personal relationships (e.g. well meaning, supportive, protective, close or reliable), and criteria that refer to socially generated cues on social media (such as popularity and reputation in the user community).

Most of the criteria that guided the students' credibility judgments and, in their opinion, guaranteed that their sources were credible belonged to the first group. These criteria represented the following source characteristics: being experienced, honest, believable, an authority, trustworthy and knowledgeable; providing accurate, verified and current information; and being reliable, professional, official, reputable, credible, respected and unbiased (Kolarić, 2021: 150). They were expressed in answers such as the following:

> I believe him. He is just like me. He always wants verified information. He wants information that is 100% accurate, and he wants me to succeed.

> [The] official university website is the source which can be trusted. I believed that it provided credible information.

> Well, because he is a professional and I guess he knows these things.

However, the students offered another type of reason for deeming interpersonal information sources to be credible. These characteristics of information sources did not typically fall under the concept of credibility but rather expressed the quality of the relationship between an interpersonal source of information and the person who received that information. The students reported believing some interpersonal information sources to be credible because they were well meaning and wanted the best for them, familiar and supportive, in a close relationship with them, and in the same situation as them. The following quotes illustrate their comments.

In the first quote, a girl explains that her sister had provided her with a piece of credible information about studying abroad. She adds why she believes that her sister is a credible information source, expressing a high level of personal trust and explaining that her sister wants what is best for her:

Interviewer:	Did you believe that what you found out from her was good, accurate and useful for your decision?
Participant:	Yes, yes. I'm 100% sure.
Interviewer:	Could you tell me why?
Participant:	Well, I know that she would never lie to me. I know that she always wants what is best for me and that she has told me the truth; she has told me about bad sides and good sides. Good sides

> prevailed and, because of that, I am going. And I know that she would never lie.

The second quote expresses the words of a girl who had been deciding on whether to stop attending dance classes and had asked her mother for advice. She explains that she trusts her mother for the provision of credible information because she has always supported her:

Interviewer: Did you believe that what she said was good, accurate and useful for your decision?
Participant: Yes.
Interviewer: Could you tell me why?
Participant: Well, I just believe her very much.
Interviewer: Would you think for a moment and then explain why you trust her so much?
Participant: I know that she will always be on my side no matter what I decide in my life, in general. She will always be there because she was the one who gave birth to me and, well, no matter what I did, even if it was the worst thing in the world, I think she would stand by me anyway. Perhaps she would not think what I'd done was good, but she would stand by me. She might tell me I was wrong, but she would have my back anyway.

In the third quote, a girl who had been looking for a job explains why she trusts her friends, whom she sees as credible information sources. She says they have a history together and have known each other for a while. This gives her reason to trust in what they say:

Interviewer: How do you know you can trust what they say?
Participant: Well, they have never let me down or done me any harm. I've been friends with them long enough to know them, as much as a person can know them, of course, as much as they let me get to know them. So, I'm already with them. I'm comfortable with them.

The results indicate that when it came to interpersonal information sources, the students valued caring and protective relationships, a close bond and some common history. This suggests that the quality of a relationship with interpersonal information sources made the students believe that they could rely on them, perceiving the sources as credible and holding the information provided to be credible as well. From this, we can conclude that they might have mistaken the quality of the relationship with the person who provided information with the quality of the information itself.

When it came to social media, the students reported judging the credibility of the information source by its popularity and reputation in the user community (e.g. users' comments and a high likes-to-dislikes ratio). This is illustrated in the following comments.

The first comment brings the words of a boy who had been deciding on what university to enrol at and had acquired information on YouTube from people he considered to be experts in the field of economics. He explains that he holds both the information and the information source to be credible because the source is praised and popular in the user community:

Interviewer: Did you believe what they had told you? Did you believe that information they gave you was accurate?
Participant: Yes, yes. Definitely.
Interviewer: Why?
Participant: Well, honestly, because they are highly valued; they are popular in this community, perhaps . . . well, according to the comments and the likes, they are valued for their words, which are held to be of good quality.

A second boy explains that he seeks information on YouTube and judges the credibility of that information based on users' comments, adding that he checks the credibility of the information by comparing it with information given by other users:

Interviewer: Take your time. Think for a moment about why you believe that information you have found is good, accurate and useful for your decision.
Participant: You can believe it is accurate only when more people say the same thing, the same information. Only then can you believe that it is accurate. And why I believe that YouTube is a good place for exploring? I don't know. I just think that it is among the better websites where you can inquire a little. For example, you can ask something in comments and people reply in real time. . . . Well, I doubt that 15 people would lie. One person might lie, but 15

or 20 people about one product . . . ? Or perhaps if 19 people liked it, and one didn't, then I would decide for myself.

The following extract expresses another student's belief that if the same information is provided by multiple sources, it can be considered credible. She was searching for information about exercising:

Interviewer: Please tell me, when you came across some information, a piece of advice or opinion, did you believe that it was good, accurate and useful for your decision?
Participant: Well, yes, I did, because in general what I'm looking for are workout videos. I mean, in general, on any page, if these exercises are repeated and if many people talk about them, it's confirmed that they are useful.

In the final quote, a boy explains that when he wants to check the credibility of acquired information, he carries out additional searches and compares the consistency of the information across multiple sources:

Interviewer: Okay, why do you believe that people on this website give you good, accurate and useful information?
Participant: Because the same information was not written by one person, but by more people.
Interviewer: I understand.
Participant: It was not written by only one person. If that was the case, then I probably wouldn't believe it. Not probably, but definitely. But since it was written by 20, 30 people, I doubt that 20 to 30 people would have written a lie. And if they had written a lie, their lies would not have sounded identical. The information didn't differ that much wherever I searched. So, I could have searched the dark web, too, and got the same information.

Discussion

The credibility of acquired information is usually judged by the characteristics of the information sources that make the sources believable (Rieh, 2010: 1341). In this study, most of the responses to the question about reasons for believing that the acquired information was credible pointed to the competence and trustworthiness of the information sources, echoing previous studies among young adults (Kolarić et al., 2021; Quaidoo et al., 2018). It seems that older youth understand that information sources characterized by expertise, experience, education and trustworthiness can be trusted for the provision of credible information.

Moreover, the study demonstrates that the high school students who participated in the research preferred seeking helpful information from other people. It also shows that some of them judged the credibility of the information provided by interpersonal sources based on criteria that imply a certain quality of relationship between the information source and the young decision-maker. These criteria include the characteristics of interpersonal information sources, such as being well meaning and wanting the best for the decision-maker; being familiar, supportive or in a close relationship with the decision-maker; or being in the same or a similar situation as the decision-maker. It is understandable and expected that young people appreciate such characteristics when seeking help with their decisions, as a similar affinity has been identified in previous studies of young people's interactions with information in the context of dealing with everyday life situations. Julien (1997) found that high school students needed and were getting not only instrumental but also emotional help from information when making career decisions. Youth's tendency to perform less demanding evaluation processes by using heuristics such as asking others for advice and basing their choices on feelings was found in Flanagin and Metzger's (2010) study. Bowler et al. (2015) asked teenagers to rank the credibility, accuracy, reliability and helpfulness of answers to eating disorder questions on a social questions-and-answers site, and reveal that they appreciated encouragement, guidance and help from fellow sufferers who were in the same situation. Kolarić et al. (2021) found that when seeking healthy diet information on social media, young people appreciated motivating and friendly interactions. Although young people's need to get help from information sources who they feel close to is understandable, it needs to be said that basing credibility judgments only on the criteria that refer to the quality of a relationship can lead to confusing the quality of the relationship with the quality of the information. This should be noted and taken into consideration when designing aids to help young people judge the credibility of information.

With regard to using social media for acquiring helpful information, the students reported using socially generated cues such as popularity and reputation in the user community to judge the credibility of the information obtained. Such information evaluation practices were found by Fergie et al. (2013), who investigated teenagers' engagement with health-related information on social media and found that they used the number of views, likes-to-dislikes ratio and user ratings to judge the credibility of information– practices that were proved in a study among college students in the context of healthy diet information (Kolarić et al., 2021). Such practices have been described as a bandwagon heuristic, referring to judging information to be credible if other people think that it is believable, as it requires less cognitive effort than careful evaluation of the information (Sundar, 2008).

It is known that young people use social media to acquire information on topics such as nutrition (Kolarić et al., 2021; Moorman et al., 2020) and health (Wartella et al., 2016). Using such information in guiding one's diet and health-related practices can have far-reaching consequences. Social media user communities do not necessarily comprise experts in the domain of interest. Consequently, meeting the criteria of popularity and a reputation in a user community, as expressed in the mentioned unique features of social media, does not guarantee the credibility of the shared and received information. As information in the form of opinions and personal experiences shared on social media varies in quality, using such information in dealing with everyday life challenges, problems and choices can lead to unsatisfying outcomes. Young people need to be aware of this when judging the credibility of information obtained via social media.

Finally, the students also reported judging credibility by comparing information from different sources. They carried out additional searches and verified the consistency of information from multiple sources. Such practices have been proved in studies of teenagers' and college students' credibility judgments (Fergie et al., 2013; Hirvonen et al., 2019; Kolarić et al., 2021; Rieh and Hilligoss, 2008). This is reassuring, suggesting that young people are not completely naive users of information. It seems that they do have a level of discernment with regard to information obtained from a complex environment and are ready to employ specific strategies to negotiate the reliability of such information.

Young people acquire information to help in dealing with life's challenges, problems and decisions in ways that go far beyond straightforward information-seeking, including obtaining information that is shared via social media and unintentionally acquiring information from this confusing environment. No matter how information is acquired, they need to judge the credibility of that information, as only credible information can improve young people's abilities to deal with life's challenges and solve problems successfully.

Conclusion

During daily activities, young people continually acquire information and use it to deal with choices, challenges and problems. The quality of the information used across contexts such as health, diet and schooling, for example, affects youth's opinions and behaviours, and consequently the quality of their lives. As today's information environment offers an abundance of information of varying quality, it is challenging to discern credible information from that which is not, particularly for young people, who have limited knowledge and experience. For this reason, many scholars have set out to investigate how youth judge the credibility of information.

The students who participated in this study showed a preference for interpersonal information sources when seeking helpful information, appreciating the quality of their relationship with the source. However, this characteristic of interpersonal information sources must not be used as the criterion for judging the credibility of information, as the quality of a relationship could be mistaken for the quality and credibility of the information. When it comes to receiving information shared on social media, reputation and popularity in the user community must not be taken as a sufficient reason for holding the information to be credible, as these features alone do not guarantee credibility. The practice of judging credibility by checking information from multiple sources encourages the belief that young people are critical towards information and seek to develop strategies to evaluate any information obtained.

Young people often judge the credibility of information by judging the credibility of the source that provided it. To judge the credibility of the source, they often rely on the source's characteristics, which are believed to guarantee the provision of credible information. Only evaluation strategies that include the criteria corresponding to the traditional concept of credibility– that is, competence and trustworthiness– can guarantee information credibility. Only credible information can contribute to effectively dealing with daily choices, challenges and problems. In contrast, basing credibility judgments on characteristics that express the quality of a relationship and personal trust in an interpersonal information source, and reputation and popularity in a user community on social media, may lead to mistaking these attributes for the credibility of the information the sources provide. Lastly, evaluation practices that include consulting multiple information sources and checking the consistency of information should be encouraged, as they involve the criticism that is needed in today's complex and confusing information environment.

Implications for practice

Today's young people live in an information environment that is complex. Their abilities to navigate such an environment determine the capacity for fulfilling their potential, which is strongly connected to a good quality of life (Zimmerman and Ni, 2021: 453). Information professionals such as librarians need to devote considerable efforts to fulfil their traditional role as information educators and teach information users how to evaluate information and its sources critically. Young information users need to be empowered not only to access information effectively, but also to decide which sources to trust. Information and media literacy skills are necessary for coping with life, and planning goals and achieving them, as well as for participating in a democratic society.

The insights from this study have implications for information educators that can be implemented in information literacy education programmes. First, young people need to gain an understanding of the distinction between the characteristics of information sources that ensure the provision of credible information and those that do not. Information educators need to raise young people's awareness of the various reasons that lie behind their credibility judgments. They need to be taught to understand that only information sources whose attributes express competence and trustworthiness can be trusted for the provision of credible information. The quality of a relationship with an interpersonal information source and reputation and popularity in a community of social media users are not among these attributes, as these qualities by themselves are not enough to believe in the credibility of information received. Evaluative practices such as verifying the consistency of information from multiple sources need to be encouraged as they involve the required level of criticism towards information sources.

Limitations

This study was carried out among high school students in the city of Rijeka, Croatia. The sampling was purposive and therefore the results refer to the young people who participated in the research process. The findings from this study should be tested in different contexts to deepen understanding of young people's credibility judgments. Moreover, a limitation inherent to the interview method is that the participants' accounts of their beliefs and behaviours might be inaccurate– that is, they may not necessarily match their actual beliefs and behaviours. We need to be aware that what has been said by the young participants might not represent the whole picture (Gillham, 2000: 94).

The study was carried out in a high school setting, which inevitably influenced the data that was collected. Gaining access to potential participants is one of the main challenges in youth studies (Kolarić and Stričević, 2021: 512). Choosing schools as the study setting facilitated approaching potential participants thanks to the understanding and cooperation of the school administrators. However, the voices of young people who did not attend high school were not captured, which sets another limitation to the study. Studies in other settings could include young people who do not pursue secondary education and might offer different results. Lastly, the student–adult power relation might have shaped the participants' answers, including what they said and what they chose not to tell. Future studies should pay due attention to this issue.

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Author biography

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Open government data initiatives in the Maghreb countries: An empirical analysis

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Abstract
This article explores the practices followed in preserving and sharing data in open data portals in the Maghreb countries, and assesses whether their structure and organization are consistent with the objectives of these portals. A set of characteristics that must be available in open data portals was developed and then used as a framework for analysing the structure and organization of open data portals in the Maghreb countries. The study adopted a content analysis approach to analyse the content of five open data portals (in Libya, Tunisia, Algeria, Morocco and Mauritania). The findings indicate that open data portals in the Maghreb countries provide data from different ministries, local communities and organizations. The findings also indicate that the open government data portals in Algeria and Morocco lack translation of content into English, which affects non-Arabic-language speakers. Moreover, the adoption of open data policies is still in its early stages. The study's originality lies in the fact that it is the first study that focuses on the countries of the Arab Maghreb and the extent of their progress in adopting and making open data available.

Keywords
Open data, Maghreb countries, open government

Introduction

Science is built on data collection, analysis, publishing and reuse. Perhaps the most prominent obstacle facing researchers is their inability to access data, in addition to the number of restrictions imposed on the use of data. Open data is data that can be accessed, reused or disseminated for any purpose, including for commercial use, without any publishing costs or restrictions (Shehata and Elgllab, 2021). The main driver for Arab governments to establish open data portals is their desire to achieve transparency and make data available to society in order to achieve sustainable development goals. However, creating and managing open data portals can involve many organizational and structural problems. These include determining the type of data that can be shared, sharing policies, data that may violate privacy, and the compliance of the portals with local and international legislation (Gascó-Hernández, 2014; Nam, 2015). 'Open' means the freedom to use, reuse and redistribute data without imposing any restrictions on such use or reuse by third parties, making the data available to all individuals. The concept of open data mainly focuses on the importance of supporting usability and access to an entire data set or knowledge work without imposing any restrictions (Molloy, 2011). The concept of open data is based on two foundational principles: that quality and creativity in the use of data is what creates human, social and economic wealth, not its existence or possession, and that the data produced by public bodies is the property of the citizens who finance those public bodies (Mauthner and Parry, 2013; Zuiderwijk et al., 2014).

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Recently, many governments, including those of Arab countries, have adopted open government data (OGD) policies, whereby web technologies are harnessed to make government data accessible. For example, Egypt launched an open data portal in 2012, where government data and statistics are available for the public. Similarly, Oman launched several policies regulating open data in 2014 with Royal Decree No. 40/2014. Saudi Arabia and the United Arab Emirates have also joined the open data movement by creating portals that give access to government data under one umbrella. These and other developed countries have heralded an era of openness and transparency in public services (Saxena, 2017c).

Despite the many advantages of open data, making data open to the public also involves several challenges. For example, the institution that makes data available to the public must establish and maintain data repositories and perform many technical operations to ensure ease of access and retrieval. Sharing data openly also involves the possibility of that data being misunderstood or interpreted out of context (Peer and Green, 2012).

In order to ensure the continuity of the open availability of data and that it not be misinterpreted, governments and institutions that share their data are keen to develop policies that regulate the handling and sharing of such data (Borgman, 2018). The regulation of data handling and sharing is not intended to impose restrictions on users but rather to establish a framework that governs this process in order to avoid any problems resulting from the misuse of data (Piovesan, 2017). In this sense, open data policies ensure the long-term transparency of government information and thus contribute to the right of citizens to access government information, which is a fundamental principle of democracy (Saxena, 2017b). Moreover, open data policies can increase the participation, interaction and self-empowerment of open data users (such as citizens) and service providers alike, spurring economic growth and bringing many other benefits (Zuiderwijk and Janssen, 2014).

This study focuses on the current reality and practices used in preserving and sharing data in open portals in the Arab Maghreb, and assessing whether the structure and data organization are consistent with the objectives for which these portals were established. To achieve this goal, a set of requirements and characteristics that must be met in open data portals was developed and then used as a framework for analysing the structure and organization of data for open data portals in the Maghreb countries.

Open data portals are a recent phenomenon in the Arab world and still in their early stages. The motivation for governments to adopt open data initiatives is related to achieving cooperation, participation and transparency in the provision of public services. Open data initiatives also contribute to providing and launching new government services for citizens; enhancing citizen services, citizen satisfaction and policymaking processes; maximizing administrative processes; facilitating the creation of new data based on data integration; and ensuring data sustainability without any data loss (Janssen et al., 2012).

The main problem encountered in this study is the fact that open data practices in the Arab world are relatively recent and still in their nascent stages. This makes these practices the subject of constant evaluation, in order to develop and improve them in line with global practices. Government portals for open data in the Arab Maghreb countries are considered the gateway for studying the reality of open data services in these countries. It is also possible to identify the extent to which government policies have achieved the goals set in this regard. The evaluation of open data portals also contributes to identifying the suitability of the available data for the aforementioned goals of achieving transparency and maximizing administrative processes and other goals.

Methods

In order to achieve the objectives of the study, the authors adopted a content analysis approach to analyse the content of the open data portals of the Arab Maghreb countries on the Internet. The study sample included five open data portals – those of Algeria, Libya, Mauritania, Morocco and Tunisia. The content analysis was carried out between June and September 2021. Table 1 outlines the details of the five portals.

In order to conduct this research, a list of 47 criteria was developed; the criteria were divided into four main categories: metadata (10); features of open data (12); services available within pages (17); and means of communication (8). The list included the following main elements: metadata criteria such as defining open data, identifying the person responsible for publishing the data, the existence of a guide to open data policies, and the intellectual property of the data available on the website; open data features such as visualization, the personal identifiers of the responsible party, an English translation and ease of access; available services features such as availability in a structured form suitable for technical use (e.g. comma-separated values (CSV), Extensible Markup Language (XML), Microsoft Excel spreadsheets), the site containing an index and links to help with navigating the pages, the browser showing the current page by displaying its URL

Table 1. The study sample.

Country	Portal name	Link
Algeria	Algeria Data Portal	https://algeria.opendataforafrica.org
Libya	Libya Data Portal	https://libya.opendataforafrica.org
Mauritania	Mauritania Data Portal	https://mauritania.opendataforafrica.org
Morocco	Open Data of the Kingdom of Morocco	http://data.gov.ma
Tunisia	National Open Data Portal	http://www.data.gov.tn

address, telephone number, means of communication and consistency. In order to develop this list, the authors consulted previous studies on the topic (e.g. Farrag, 2019; Saxena, 2018a).

Literature review

This literature review covers the studies related to open data in the Middle East. The section also covers the challenges of adopting open data and current practices. The researchers used many Arabic databases to search for Arabic literature, such as Dar-Almundumah and Al-Manahl. In addition to the Arabic databases, international databases such as Emerald and SAGE were consulted.

The concept and objectives of OGD

Open data is data that can be freely used, reused and distributed by anyone. Abu Rida and Mahmoud (2017) define OGD and information as information that public and governmental bodies and institutions collect, produce and publish. Open data must be made available to the public without restrictions to access or use, preferably in files for easy access and retention. The different types of OGD and information include commercial, tourism, topographical and legal information. One of the characteristics or features of OGD is that it must cover the services and activities of the government entity comprehensively and be of value to users and beneficiaries (Abu Rida and Mahmoud, 2017).

Open data is used under the condition of refereeing its original owner and making any new work based on the data available under the same open data license (Saxena, 2018b). According to the literature, OGD may be classified into six types: (1) private open data, such as business and investment information, documents and patents; (2) geographical information, including addresses, aerial photographs, buildings, cadastral information, geodesic networks, geology, hydrographic data and topographic information; (3) legal information, including the decisions of national, foreign and international courts, national legislation and treaties; (4) meteorological information, including climate data and models, as well as weather forecasts; (5) social data, including various types of statistics on the economy, employment, health, population and public administration; and (6) transportation information, including traffic congestion, roadworks, public transportation and vehicle registrations (Saxena, 2018a; Ubaldi, 2013).

Open data is how governments seek to communicate with society and demonstrate a degree of transparency. Thus, open data is evidence of the development of the ‘open government’ phenomenon, which is based on three pillars: transparency, participation and cooperation (Wirtz and Birkmeyer, 2015). OGD initiatives aim to build collaborative bridges between citizens and the government by disseminating and providing access to information. The subject of OGD has attracted the attention of researchers. Therefore, we found a number of studies that have aimed to explore the extent to which governments in different geographic regions adopt these initiatives and the extent to which these initiatives have succeeded in meeting the information needs of citizens (Safarov et al., 2017; Wirtz et al., 2018).

Open government works to improve the efficiency of public services; provide open data to individuals, the private sector and non-governmental organizations; and achieve efficiency in decision-making. Open data is a guarantee against poor governance and corruption (United Nations, 2018). Muhammad and Dakhel (2019) indicate that making open data available to citizens in the Gulf countries enhances their right to know, access, use and share information. Abu Rida and Mahmoud (2017) conclude that the advantages of open data include providing opportunities for employment and investment; encouraging and supporting innovation through private institutions benefiting from data and information; and supporting scientific research by providing access to data and statistics published by institutions. It helps with making economic, social and informed decisions at a low or medium level.

Open data practices in the Middle East

Arab countries have achieved varying degrees of success in the areas related to open government, such as e-government, open data, and the adoption of relevant legislation and laws. Most of the efforts in open government in the Arab region have focused on OGD portals (United Nations, 2018). Muhammad and Dakhel (2019) indicate that all of the OGD portals of the Gulf Cooperation Council countries need to be further developed to varying degrees; each portal suffers from different shortcomings in many services. Al-Saadani (2015) found that developed countries design their open data portals using open source software while applying open data principles. The study also concludes that there is no integrated portal for OGD in the Arab countries that matches the portals of developed countries in terms of resources and services related to open data.

With regard to the characteristics of open data and the services available on OGD portals, many studies have explored Arab initiatives in the field of OGD and compare open data initiatives in Arab countries. Saxena (2018b) aims to provide an overview of OGD frameworks in six countries in the Middle East (Cyprus, Turkey, Egypt, Iran, Lebanon and Jordan). The study reveals that OGD initiatives in these countries are still at an early stage. The study found that all six countries already have open data policies, but the data provided through those government portals is incomplete and outdated. Another study by Saxena (2018a) aims to compare the OGD initiatives in Iran, Lebanon and Jordan. The study found that OGD initiatives were adopted in Iran, Lebanon and Jordan at a very early stage. The data that is shared openly is incomplete and does not achieve the goals of open data initiatives. The study also found that the data presented is aggregated data, which is presented in such a way that it does not allow for analysis.

Farrag's (2019) study aims to identify the current practices of Saudi universities in managing open data, especially research data. The article explores the topic in terms of the preferred ways of making data available, the entity responsible for access, the extent of disclosure of the relevant policies and legal licenses, what types of data are available, and the file formats in which it is made available. The study concludes that Saudi universities focus on providing administrative statistical data, not research data, and that this data does not come via university repositories or data facilities. The results show that the data is sourced from fixed web pages without any search capabilities, without providing services related to research data and without specific plans for data management.

Salem and Shehata (2020) review the open data portal of the Ministry of Education in the Sultanate of Oman; their study analyses the content of the portal to identify the quality of the open data provided through the portal. The study concludes that the portal provides users with the ability to obtain data on higher education institutions and provides tools that facilitate the analysis and representation of such data, which aids in the extraction of information that can be used in scientific research. Katbi (2020) explores the situation in the Kingdom of Bahrain regarding the use of OGD. The study also sought to assess citizens' awareness of OGD and identify citizens' requirements for OGD. The results reveal that the government supports open data, which is reflected in increasing awareness of open data practices.

Open data challenges in the Middle East

The literature reveals that many scholars have explored the policies and challenges of open data in the Middle East. These studies reveal that the implementation of open data has faced significant challenges in the Middle East, including deciding which data can be made available, recognizing the importance of that data, and an unwillingness to share government data publicly (United Nations, 2018). Abu Rida and Mahmoud (2017) stress that implementing open data and information policies by launching initiatives has positive effects at the local level (supporting ways of cooperation between different institutions and achieving participation with citizens), the regional level and the international level. According to the United Nations Economic and Social Commission for West Asia (2018), most Arab countries do not have a clear and integrated policy or strategy for open government. However, many have full or partial national plans for open government. Its report states that those countries that have plans for open government are Jordan, Morocco and Tunisia, while five Arab countries have adopted laws on the right to access information (Jordan, Lebanon, Morocco, Tunisia and Yemen).

Saxena (2018b) found that the countries in her study sample (Cyprus, Egypt, Iran, Jordan, Lebanon and Turkey) already had open data policies. However, the data provided through the portals of these governments is incomplete and outdated, creating barriers to using the data sets for analysis and interpretation. It is unfeasible to use the open data provided by these portals due to the poor quality of the data. Another study by Saxena (2018a) examines the challenges facing OGD initiatives in Iran, Jordan and Lebanon. The findings show that many challenges must be overcome to properly adhere to the objectives of OGD initiatives, including improving the interaction between citizens and government by creating a culture of transparency, collaboration and accountability. One of the works that deals with open data in the

Sultanate of Oman is Saxena's (2017b) study, which concludes that the open data initiative in Oman suffers from many problems, which has resulted in the inappropriateness of using the data for analysis and extracting useful information. The study found that it is essential that the Omani government pay more attention to open data initiatives in order for the open data portal to keep pace with the existing initiatives of other governments.

Katbi (2020) sought to assess the level of citizen awareness in the Kingdom of Bahrain with regard to OGD and identify citizens' requirements for OGD. The study also attempts to identify the main challenges and obstacles in using or reusing OGD in the Kingdom of Bahrain. The results show significant efforts on the part of the Bahraini government to advance the implementation of the OGD initiative. In the United Arab Emirates, government agencies make data sets available through dedicated electronic portals to enhance citizen participation, transparency and administrative efficiency. The United Arab Emirates government has tried to make the published data useful so that different beneficiary groups (citizens, private sector professionals, non-governmental organization professionals, software developers, etc.) can obtain information from it. However, there are several barriers to the reuse of the data sets for a large number of the beneficiaries (Saxena, 2020). In Saudi Arabia, the open data portal provides a set of open data that has been derived from many ministries. However, despite the availability of open data, there are barriers to the reuse of the data sets due to the lack of publication of updated data. Saxena's (2019) study concludes that the quality of the data sets available through the portal must be improved. There is a need for more participation from different ministries in the data sets. Also, the study found that users are not aware of the availability of open data, which means that the country should enhance user participation by encouraging users to contribute to the data sets and thereby improve them.

Results and discussion

In order to learn about the current open data practices in the Maghreb countries, the researchers analysed the portals in terms of the information provided about the portals, communication methods, features of open data available in the portals, and services provided by the portals.

Information provided about the portals

Table 2 shows that information about open data and the portals was available in the government data portals for both Morocco and Tunisia. On the other hand, Algeria did not have a guide to open data policies, but announced open data with links to social media and defined open data terms. In Libya and Mauritania, more information was missing than in Algeria, such as the definition of open data and the person responsible for publishing the data on the web page.

Communication methods

From Table 3, it is clear that the OGD portals in Tunisia, Algeria and Morocco provide the following means of communication: emails for inquiries, easy follow-up of search requests and inquiries, and the possibility of requesting unavailable data. As for Libya and Mauritania, communication on the OGD portals is limited to emails for inquiries. With regard to Algeria's open data portal, it was found that it lacks any means of interaction with the data, such as social media platforms. It also lacks an opinion poll, a mobile application and an electronic chat service for communication. The open data portals of the Arab Maghreb countries lack electronic chat services for ease of communication. The open data portals of Algeria, Morocco, Libya and Mauritania lack really simple syndication (RSS) services, opinion polls and mobile applications.

Open data characteristics

Table 4 reveals that the OGD portals in Libya, Tunisia, Algeria, Morocco and Mauritania have the following features: open data is published in the form of raw data; the data contains images and illustrative graphs; the data contains the personal identifiers of the responsible parties; open data exists for a range of years; and the open data is easy to access, without the need for login data.

Some of the OGD portals in the countries of the Maghreb provide the following features: open data in real time; data that is available in a structured format suitable for technical use (e.g. CSV, XML, Microsoft Excel spreadsheets); data that is published in adjustable file formats, can be cut and pasted, and is downloadable; and an open data usage policy on the site. Notably, the OGD portals in the Arab Maghreb countries do not have a feature that allows the user to be notified if the file needs a specialized programme to open it. Additionally, Table 4 shows that there are no English translations on the OGD portals in Algeria and Morocco.

Services available in the portals

Table 5 shows that the OGD portals in Tunisia, Algeria and Morocco provide the following services

Table 2. Information provided about the portals and open data.

Criteria	Libya			Algeria			Tunisia			Morocco			Mauritania			Frequency
	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	
Refers to open data with clear details for users	√			√			√			√			√			5
Explanation of portal's aim and open data		√		√			√			√				√		3
Provides information on who is responsible for publishing the data on the web page		√		√			√			√				√		3
Existence of a guide to open data policies		√			√		√			√				√		2
Indicates the intellectual property of the data available on the site	√			√			√			√			√			5
Links to open data on the government services website	√			√			√			√			√			5
Shares open data with social media links		√			√		√			√				√		2
Definition of open data		√			√		√			√				√		2

Table 3. Communication method on the pages of the OGD portals in the Maghreb countries.

	Libya			Algeria			Tunisia			Morocco			Mauritania			
Criteria	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Frequency
Email for inquiries	√			√			√			√			√			5
Electronic chat service for ease of communication		√			√			√			√			√		0
Social media platforms for interaction with data users and links to electronic platforms		√			√		√			√				√		2
RSS feed		√			√		√				√			√		1
Easy to follow up on search requests and inquiries		√		√			√			√				√		3
Opinion poll		√			√		√				√			√		1
Mobile application		√			√		√				√			√		1
Possibility to request unavailable data		√		√			√			√				√		3

Table 4. Open data characteristics.

Criteria	Libya			Algeria			Tunisia			Morocco			Mauritania			Frequency
	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	
Publishes open data in the form of raw data	√			√			√			√			√			5
Data contains illustrative pictures and graphs	√			√					√			√	√			3
Data contains personal identifiers of the responsible parties	√						√			√			√			4
English translation of the Arabic content	√			√				√			√		√			3
Open data has existed for a range of years	√			√			√			√			√			5
Easy access to open data without the need for login details	√				√		√			√			√			4
Provides open data in real time and makes it available in a structured format suitable for technical use (e.g. CSV, XML, Microsoft Excel spreadsheets)			√		√		√			√					√	2
Data published in editable, cut-and-paste, downloadable file formats	√				√		√			√			√			4
If the file requires a specialized programme to open it, the user is alerted and provided with links to the programme		√				√			√			√		√		0
A policy for the use of open data on the site		√					√			√				√		2

Table 5. Services available in the portals.

Criteria	Libya			Algeria			Tunisia			Morocco			Mauritania			Frequency
	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	Available	Not available	Available to some degree	
Site contains an index and links to help navigate the pages			√	√			√			√					√	3
Browser can show the current page it is browsing by displaying its full address			√	√			√			√					√	3
Consistency of pages in the way they are presented	√			√			√			√			√			5
Links to websites related to the data provided		√			√		√			√				√		2
Logo of the organization responsible for the data is present in all data			√		√		√					√			√	1
Easy to find the site and pages through search engines			√	√			√			√					√	3
High degree of security in using the site and downloading data	√			√			√			√			√			5
Ability to search within the pages and the site	√			√			√			√			√			5
Pages in more than one language	√			√			√				√		√			4
Content accessible for people with special needs		√												√		0

on their pages: an index and links that help in navigating between the pages; the browser shows the current page it is browsing by displaying its complete address; a consistency and compatibility in the pages in the way they are formatted; it is easy to find the site and pages through search engines; a high degree of security in using the site and downloading data; and the ability to search within the pages and the site.

Nevertheless, 40% of the data portals in the Maghreb countries provide links to useful sites related to the available data. The OGD portals in Libya, Algeria and Mauritania lack links to related sites. The open data portal in Morocco lacks pages in more than one language, and the logo of the institution responsible for the data appears alongside all the data. The open data portals of the Arab Maghreb countries were also found to lack services for people with special needs.

Conclusion

The main driving force behind open data is making governmental data available for everyone, thereby accelerating the development process. Hence, making government data open to people contributes to human, social and economic wealth development. The OGD in the Arab countries covers the services and activities of the government entities comprehensively (Abu Rida, 2017). Open data supports decision-making and safeguards against poor governance and corruption (United Nations, 2018). Having access to governmental data is the taxpayers' right, as they fund governmental institutions. The adoption of OGD policies by the Maghreb countries and the harnessing of web technologies to support the availability of this data ensures the transparency of government information and contributes to citizens' right to access government information, which is a fundamental principle of democracy (Lněnička et al., 2021; Sriyakul and Jermsittiparsert, 2020).

Like other Arab countries – for example, Saudi Arabia, Oman, the United Arab Emirates and Egypt – the Maghreb countries pay considerable attention to open data policies and portals (Farrag, 2019; Salem and Shehata, 2020; Saxena, 2018b). The Maghreb countries have launched open data portals that provide users with governmental data that can be utilized in research. Notably, the quality of the data varies across the portals – the data collected in the Moroccan government's open data portal, for example, is mainly from surveys conducted by ministries, local authorities and public bodies, and general statistics and indicators issued by public organizations, local authorities and public bodies.

The open data portals in the Arab Maghreb countries aim to encourage the public to benefit from data that is made available electronically for free. This constitutes an intangible heritage that can serve the entire community. Researchers can find materials related to their work and scholarly field. Developers can create innovative services using this data, and companies can provide added value, creating jobs and wealth for society. The countries of the Maghreb have provided data on their portals about licensing the reuse of open data. One of the essential things indicated is the user's freedom to participate – that is, to copy, distribute and use a database; as long as the copyrights are stated, the user is free to reproduce the data. However, studies have found that open data portals in the Middle East, including the Maghreb countries, need more attention from governments, and regulations should be amended to be able to provide access to data that would be considered useful for researchers and users (Saxena, 2018a, 2018b, 2019, 2020). There is no integrated portal for OGD in the Arab countries that is comparable to OGD portals in the leading countries in adopting open data policies in terms of resources and services related to open data (Al-Saadani, 2015).

Overall, the open data portals in the Maghreb countries are still in their nascent stages, and there are many opportunities for improvement in these portals and the efforts made by governments. We deem that it is necessary to provide English translations alongside the French and Arabic on the OGD portals in the Maghreb countries. This would allow for the benefits to be enjoyed more widely and provide an opportunity for researchers who are not fluent in Arabic and/or French to access and understand this open data. Moreover, the OGD portals in the Maghreb countries should alert site users to the programmes needed if the data files require specific software. While it has been noted that the open data portals in Gulf countries such as Oman and Saudi Arabia provide services for users with special needs (Saxena, 2016, 2017a), these services are not available in the portals of the Maghreb countries. It is important to help people with special needs access open data by adopting the technical means that allow them to access the data in a suitable format. Additionally, open data portals must have external links that allow access to other sites related to the open data available in the portal.

Open data policies should be available for users. A clear policy will help users understand the nature of the open data and benefit from it. The open data policy should ensure that users follow ethical practices when using the data and reproduce the data under a similar license, which will help to boost the utilization of the data in research (Kassen, 2018). Most Arab countries do not have a clear and integrated policy or strategy regarding open government. However, many have complete or partial national plans for open government, including Jordan, Morocco and Tunisia (United Nations, 2018).

In sum, the Maghreb countries have made significant efforts to provide access to open data. However, these efforts are still in their early stages and require more attention. Open data can provide many benefits for governments and users, but in order to achieve these, the data needs to be provided in a format that is usable for researchers and the public. Governments need to pay more attention to improving the services provided in their current portals. Governments must formulate policies that will help them adopt more open data initiatives and allow more access to government data and information.

Our findings are consistent with the findings of studies conducted in other countries in the region (Asiri and Al-Suraihi, 2019; Saxena, 2018b). The findings indicate a lack of maturity in the Maghreb countries' open data, which has been concluded by other studies (Saxena, 2016, 2017b, 2018b). Therefore we find, as other studies on the topic have indicated, that it is important to revise open data policies in the region, including the Maghreb countries. In addition, we have found that the open data portals in the Maghreb countries might be inferior in the services they offer compared to other countries such as Saudi Arabia and Oman, as these countries have made progress in their open data portals. On the other hand, compared to developed countries, the open data portals in the Maghreb countries need more government attention to establish a channel that people can use to access public information.

This study was conducted on Maghreb countries' portals in Arabic and English; we did not include the French version of the portals in our analysis. Hence, more services might be available in the French version of these portals. Another limitation is that our study did not explore the quality of the services provided, as we only focused on the characteristics of the services.

Future work might explore users' perceptions of the quality of the services and data available through the portals, which would help to improve the current services and enable understanding of the progress made in open data in the Maghreb countries. Future studies might also compare the open data portals in the Maghreb countries with other portals in the Middle East, such as Saudi Arabia, the United Arab Emirates, Oman and Egypt.

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Comparison of library studies programs in Croatia and the USA

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Abstract

This study describes and compares the minimum educational requirements of library and information science programs offered in Croatia and the USA. The article adds to previous research in comparative education and comparative librarianship. The findings show notable differences and similarities between the two countries. The library and information science educational path in Croatia is more structured, requiring a Bachelor's degree in addition to a Master's, as well as postgraduate licensure. The USA typically only offers graduate degree programs in the field. Library and information science programs in both countries are generally flexible and highly customizable. Both countries require several foundational courses in librarianship, however, Croatian programs place greater emphasis on technology and collection management curricula. In contrast, library and information science programs in the USA require more managerial coursework and offer students increased flexibility in terms of course choice. This article may assist library school educators in evaluating their programs to address current and future professional needs.

Keywords

Comparative librarianship, comparative education, library science, information science, curriculum, educational programs, Croatia, USA

Introduction

Five librarians from the University of Split and Pennsylvania State University (Penn State) formed a research team, which started as part of the Penn State University Libraries Sister Library Program within Penn State's Global Engagement Network. The program began in 2016 and continues to facilitate intercultural programs, collaborative research projects, and other initiatives on a global scale between member institutions. Facilitated by the Head of Global Engagement Initiatives at Penn State, the authors met to discuss shared research interests and the similarities and differences of the profession in each country. These discussions naturally led to topics related to librarian education. Noting common practices shared

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between us and acknowledging a few major differences, the group decided to conduct a formal comparative study of the education of librarians between the two countries. The Croatian library education system experienced significant change following its Yugoslav period and the country's signing of the Bologna Declaration in 2001, which prompted its participation in the European Union's Bologna Process. These changes not only affected higher education across the European Union generally, but also librarian education in Croatia specifically (for further reading, see Horvat, 2005).

Comparisons and contrasts between the US librarian education system, with over 100 years of established practices and evolution, and the much younger Croatian system could yield beneficial information for librarianship in both nations. The primary focus of this article is to compare the minimum educational requirements for library and information science (LIS) programs offered in Croatia and the USA. The authors believe that a comparative study such as this may highlight notable curriculum commonalities and differences that may be of particular interest and use for library hiring managers, potential students, and "library school" educators and administrators around the world.

Literature review

Why compare?

Lor (2019: 73–74) traces international comparative librarianship to the 1970s. Simsova and MacKee (1970: 11) trace it even further back to Chase Dane's 1954 article "Comparative librarianship." Foskett's (1976) *Reader in Comparative Librarianship* demonstrates that there was a critical mass of literature on comparative librarianship (and demand) to produce that volume.

The roots of comparative librarianship come from many fields, but for the purposes of this article, comparative education is likely the most important. Comparative education is a well-established field, with journals in that subject existing since the 1950s and an international body, the World Council for Comparative Education Societies, founded in 1970 (Lor, 2019: 74). Simsova and MacKee (1970: 13) noted that comparative education "has existed for over a hundred years [now 150 years] and has a well developed methodology, which can be applied without difficulty to comparative librarianship." In Dane's seminal article mentioned above, he defines comparative librarianship in relation to other areas of comparative study:

> It is a study of library development in many countries to discover what developments have been successful and can be copied elsewhere. It is an examination of the philosophies and policies of librarianship on an international scale to determine long-range trends, to appraise shortcomings, and to uncover contradictions and inconsistencies between theory and practice. Above all it is the study of cause and effect of library development throughout the world. Like comparative anthropology and comparative religion, comparative librarianship seeks to broaden our tolerance and deepen our understanding. (Dane, 1976: 23)

Further to Dane's definition, Liu (1992: 107) provides a compelling metaphor that demonstrates the value of comparative librarianship, stating that "the corner under the lighthouse is dark." Only other lighthouses (in this case, other countries) can cast light into our own "corners" and thereby illuminate our faults and our strengths. Comparisons "offer opportunities for identifying common ground while distinguishing differences, as well as for assimilating what is useful and discarding what is not" (Liu, 1992: 107).

The current article focuses specifically on LIS education in order to compare what students in Croatia and the USA are learning in their programs. Further, Lor (2019: 77) cautions that "comprehensive comparative" studies of all facets of librarianship across two nations or more are largely "too ambitious for successful realization." LIS education is an ongoing and lively topic in comparative librarianship. Examples of recent comparative studies on LIS programs include "Challenges in LIS education in China and the United States" (Xue et al., 2019) and "A comparative study of LIS accreditation frameworks in Australia, New Zealand, United States, and Canada" (Gibbons and White, 2019). As to the importance of this work, once again Dane (1976: 25) has an optimistic but compelling answer: "[p]robably the greatest benefit of comparative librarianship concerns the exchange of ideas which would result from such a study. The vitality of any science depends to a large extent on the free flow of ideas between scientists."

The review of the literature found no comparative studies of librarianship between Croatia and the USA.

Why the core curriculum?

With a vast number of elective courses offered by LIS programs, it is difficult to say with any certainty what a student might have learned in the course of their study. This is even without delving into the vagaries of what courses in the catalog were offered during the time a student was enrolled. However, researchers have examined the core curriculum (also known as "required courses") as a way to understand what topics students are likely to have encountered during their LIS program, as well as providing a glimpse into what each program has determined to be central to the education of students. As Chu (2012: 8) writes: "Required courses, known as the curricular core, represent the essentials that must be taught in a degree program." Hall (2009: 57) reasons that by "investigating the core curriculum in both structure and content, we can develop an idea of what fundamental knowledge, skills, and abilities the average LIS graduate can be expected to possess." In addition to general and historical examinations of the core curriculum (see Burton, 2016; Irwin, 2002; Marco, 1994; Markey, 2004), researchers have used the core curriculum to examine specific aspects of LIS programs, such as diversity and social justice (Kumasi and Manlove, 2015).

Methods

Data collection

The researchers initially sought to complete a comparative mixed-methods study on all graduate-level accredited LIS academic programs offered by colleges and universities within Croatia ($N = 3$) and the USA ($N = 53$). The research team divided into two groups, by country of employment (Croatia and the USA), to collect respective data. Because most information about LIS programs within each country is reasonably up to date and made publicly available by the degree-granting institutions, the researchers used the colleges' and universities' websites as data sources. A list of institutions that offer American Library Association (ALA)-accredited Master's programs in the USA was found on the ALA's website.[1] Similarly, Croatian institutions were identified from the official register of accredited programs in the Republic of Croatia.[2]

Askey (2010: 202) notes that comparing the educational systems of different nations, even in a particular discipline, is difficult as "one must generalize to avoid bogging down in endless details . . . Nevertheless, there are discernible patterns and trends worthy of commentary." After a few meetings, the researchers confirmed this analysis through the identification of major differences, at the country level, in the path to professional librarianship that would impact data collection and analysis. Notably, students who become professional librarians through Croatian programs often study LIS at the undergraduate level as a prerequisite to Master's programs (although this is not required), whereas, in the USA, a Master's degree in LIS combined with any undergraduate degree is the standard for professional librarian employment. After identifying this difference, the research team focused only on the minimum curricular requirements of the professional librarianship programs in each country. This meant that the Croatian team gathered data on LIS programs at both the undergraduate and Master's levels. Since no professional librarian programs at the graduate level in the USA require students also to have an undergraduate degree in LIS, the US team only collected data at the Master's level. Professional librarian positions in the USA and Croatia rarely, if ever, require a doctoral degree from LIS programs, therefore they were not included in this study.

In order to compare minimum curricular requirements, the researchers gathered data primarily about the core or required courses at each institution. In addition to comparing the minimum curricular requirements between the two countries, the authors also include data about the institutions' tracks, specializations, and areas of concentration as a way of describing the curriculum more completely. Program tracks, concentrations, and areas of study will be referred to as "concentrations" throughout the remainder of this article. The authors included data about concentrations that are officially recorded as well as ones that are not officially recorded on students' records (transcripts). Data about certificate programs was not included, because they are optional for students, vary widely in focus, and often require additional credit hours.

The following data points about each individual LIS program were collected:

- Type of term (quarter or semester);
- Titles, abbreviations, and descriptions of each required course (labeled "core" or not);
- Count of required courses coded within each ALA (2009) Core Competency;
- Capstone or portfolio requirements (if any);
- Internship or practicum requirements (if any);
- Thesis requirements (if any);
- Minimum sum of required credits for graduation;
- Total sum of all course credits for graduation;
- Percentage of required course credits out of minimum sum of required credits for graduation;
- "Flexible" core status;
- List of tracks, concentrations, and/or areas of specialization (official or unofficial, not including certificate programs).

Data analysis

During the initial discussions regarding this investigation, the ALA's (2009) Core Competences of

Librarianship emerged as a strong contender for a comparative baseline between the two countries. After thoughtful consideration, the Croatian authors determined that not only was a comparison possible but the document also closely aligned with the LIS programs offered in Croatia. Therefore, the entire research team selected the ALA's (2009) Core Competences of Librarianship as the ideal and primary frame of reference for this investigation. The course descriptions were used as data sources to code the required courses from all of the institutions included in this study. The required courses were coded into the following categories:

1. Foundations of the Profession
2. Information Resources
3. Organization of Recorded Knowledge and Information
4. Technological Knowledge and Skills
5. Reference and User Services
6. Research
7. Continuing Education and Lifelong Learning
8. Administration and Management. (American Library Association, 2009)

At many institutions, the required courses were labeled as "core" courses. In this analysis, the researchers included all courses that were required to complete the program at the time of data collection, whether they were labeled as "core" or not. These courses will be described as "required courses" throughout the remainder of this article. During the coding process, the researchers identified some required courses that could be coded into multiple categories. In this case, the count of required courses coded within each ALA (2009) Core Competency was divided by the number of competences it logically fit into. For example, if the course description of a specific course emphasized both Information Resources and Reference and User Services, it was counted as 0.5 for Information Resources and 0.5 for Reference and User Services. A course that neatly fit only one category was counted as 1.

Due to the disparity in the number of institutions and the number of elective courses offered between the two countries, the US authors chose to analyze and compare elective courses on a much broader level than the Croatian authors. Since US students often choose elective courses based on their anticipated career path, the research team decided not to code electives at the course level. Instead, they decided to list and code the institutions' concentrations as a proxy for analyzing elective courses. The Croatian authors were able to code elective courses based on the Core Competences due to their smaller number of institutions.

Data storage

The two research teams' data and files were securely stored and shared among the researchers using the cloud-based storage service Google Drive, which was provided by Penn State University.

Ethical considerations

Since this research did not involve human subjects, the researchers concluded that a review by an institutional review board was not necessary. At the onset of this research project, the authors considered the possible bias in categorizing courses offered in Croatia using the ALA's (2009) Core Competences of Librarianship. As mentioned above, because most of the courses offered in Croatia closely aligned with the ALA's Core Competences, the authors from Croatia decided that this document was an appropriate and useful comparison tool to be used among the entire research team. This article is written in English to reach a wider audience. A reference list of Croatian-language articles is provided in Appendix 1 for interested readers.

Results: USA

The US authors analyzed 53 institutions offering ALA-accredited Master's programs in the USA. The majority (49) of these institutions have a menu of selections for core courses. This will be referred to as "menu core" throughout the article. The institutions were coded as "menu core" only when students could select between several courses in one competency to meet a core requirement and the option of courses had the same number of credit hours. For example, the University of Iowa allows students to choose between the courses 6110 (Evidence-Based Practice) and 6170 (Organizational Management) to meet the Administration and Management requirement. The remaining four institutions (University of Hawai'i at Mānoa, University of Michigan, Rutgers, and University of Washington) were coded as "flexible core." Flexible core occurs when there is no set path to a degree.

Term type and core credit hours

Of the 49 institutions coded as "menu core," 46 (93.9%) had semester terms and 3 (6.1%) had quarter terms. The 4 flexible-core institutions followed a similar pattern, with 3 (75%) with semester terms and 1 (25%) with quarter terms.

The core credit hours were separated by term type to accurately compare the average number of hours required to complete a degree. Table 1 shows the average number of hours for core courses, total

Table 1. US credit hours.

	Menu core		Flexible core	
	Semesters	Quarters	Semesters	Quarters
Average number of core credits	16.5	22	12	34
Average number of total credits	37.1	58.3	41	63
Average core percentage of the programs	44.5	37.7	29.3	54

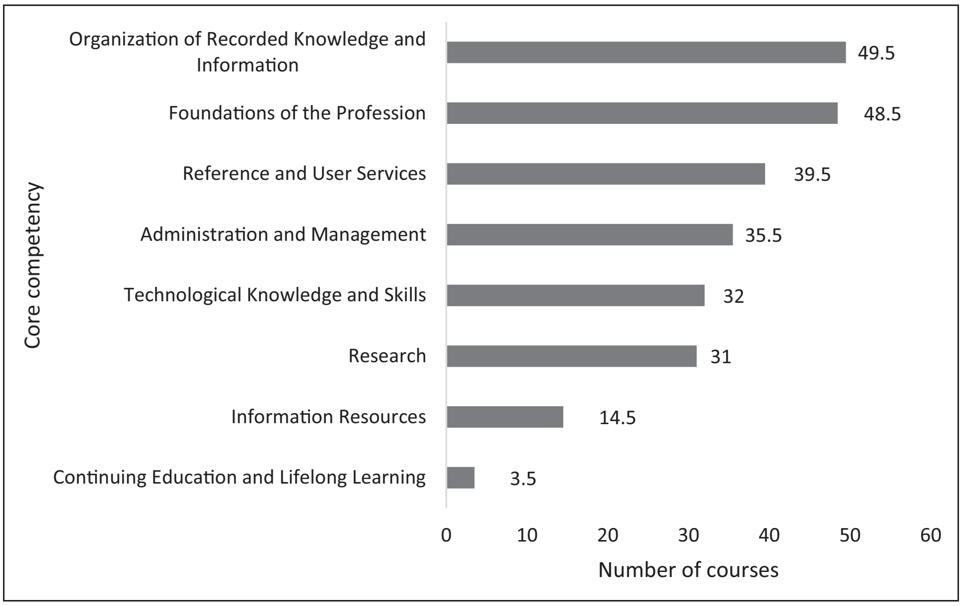

Figure 1. US menu-core competences.

number of hours to complete a degree, and percentage of core credit hours to total credit hours.

For menu-core institutions with semester terms, the number of core credit hours ranged from 6 (University of Illinois Urbana-Champaign and University of Texas at Austin) to 31 (University of Southern California). The total number of credit hours ranged from 36 (32 institutions) to 58 (University of North Carolina at Chapel Hill). Menu-core institutions with quarter terms ranged from 19 (University of Denver) to 27 (University of California, Los Angeles) core credit hours, and 45 (Drexel University) to 72 (University of California, Los Angeles) total credit hours. For flexible-core institutions with semesters, the number of core credit hours ranged from 6 (University of Michigan) to 21 (University of Hawai'i at Mānoa), and the total credit hours ranged from 36 (Rutgers) to 48 (University of Michigan). The University of Washington is the only flexible-core institution with quarter terms (see Table 1).

Competences

The competences of the required courses at the menu-core institutions can be seen in Figure 1. Since the authors deemed the number of courses that fell within each competency to be important, the data was not separated by term type.

The Organization of Recorded Knowledge and Information competency is reflected at all 49 institutions, with 49.5 courses (101%). Note that the percentage is over 100% due to some courses fitting into more than one competency. The Continuing Education and Lifelong Learning competency was the competency with the least number of courses, at 3.5 (7.1%), and the median competency was Administration and Management, with 35.5 courses (72.4%).

The composition of competences that an average librarian could obtain from a Master's degree in LIS in the USA can be seen in Figure 2.

Other degree requirements

While most US institutions only require the completion of a set number of credit hours to obtain a Master's degree in LIS, several have additional requirements. The most common requirements are a capstone or portfolio that demonstrates the culmination of the student's work throughout the degree program, an internship or practicum where students work

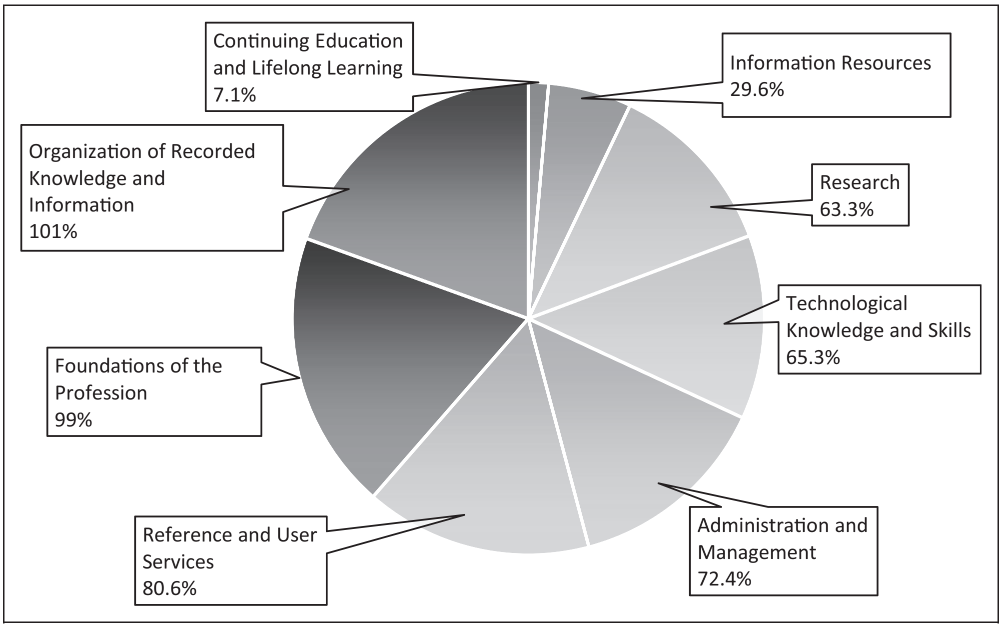

Figure 2. Composition of average US librarian competences.

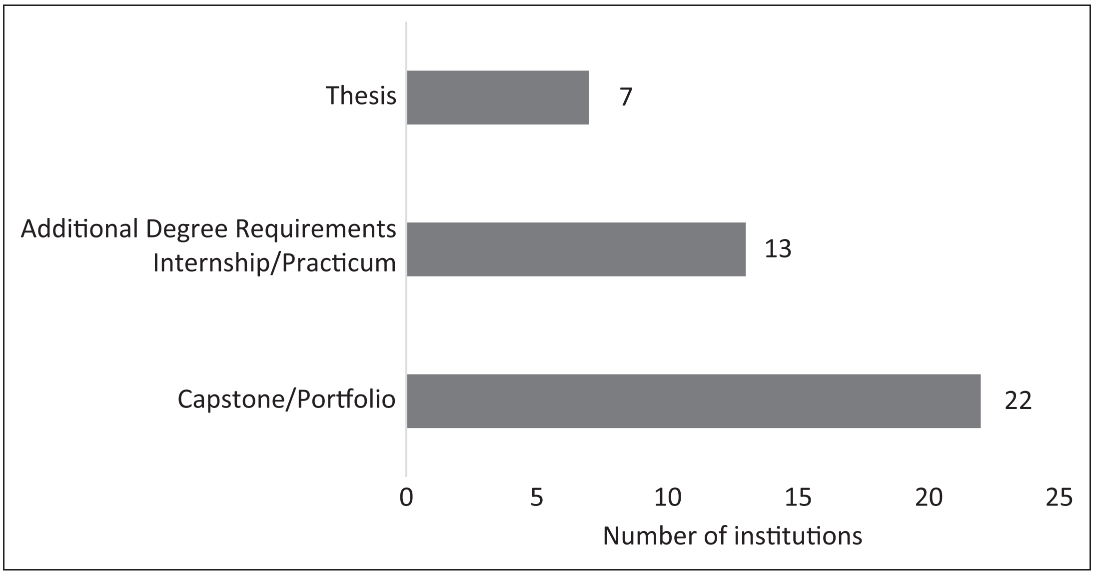

Figure 3. Other US degree requirements.

in an operating library for credit, or a thesis consisting of long-term personal research. The number of institutions requiring these additional degree requirements can be seen in Figure 3. Of the menu-core institutions, 44.9% require a capstone or portfolio, 26.5% require an internship or practicum, and 14.3% require a thesis as additional requirements to complete a Master's degree.

Concentrations

Due to the number of US institutions, the current study follows Chu's (2012) method of examining "elective courses . . . through the lens of concentrations or specializations that are also known as tracks," since it was infeasible to analyze and code the non-required courses for the ALA Core Competences. Additionally, while these courses are available to students at the institutions, without enrollment statistics for each course, it is difficult to determine if students were actually taking these courses. Despite this, the authors were interested in developing a picture of the average US librarian. All the institutions studied provide a grouping of elective courses based on a concentration of librarian study, and the authors used these as a proxy for describing the courses. While these concentrations exist and often provide a path for students to follow in obtaining their degree, it is rare for the completion of these concentrations to appear on

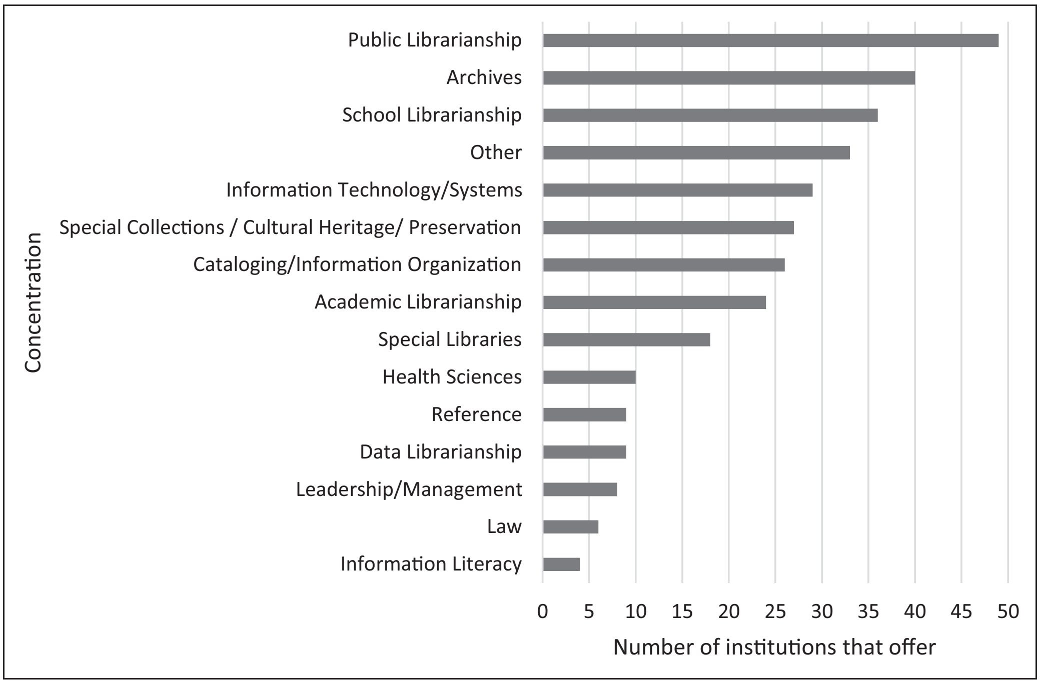

Figure 4. US academic concentrations.

a student's transcript or diploma. In Figure 4, it can be seen that 92.5% of the institutions (49 out of 53) offer a Public Librarianship concentration, whereas, at the other end of the spectrum, only 7.5% (4 out of 53) offer a concentration devoted to Information Literacy. The median concentration is Academic Librarianship, with 45.3% of the institutions (24 out of 53) offering such courses.

Flexible core

The researchers found that the core curricula at four schools (University of Hawai?i at Mānoa, University of Michigan, Rutgers, and University of Washington) emerged as outliers. The core courses at these schools were conspicuous in the data set either due to their flexibility or because multiple course options did not clearly align with the ALA's Core Competences of Librarianship. Instead, some course options appeared to fall under more specialized categories. For example, at the University of Hawai'i at Mānoa, LIS 662: Asian Informatics was one of the core options that seemed more specialized in comparison to the core courses within the majority of LIS programs. At Rutgers, one of the required courses was titled "Colloquium in Library and Information Studies," which could cover a variety of topics during a given semester. Also, at Rutgers, students were able to choose two out of four "foundational" courses among other requirements. The four aforementioned foundational courses at Rutgers were aligned with the ALA's Core Competences. However, because of the program's flexible nature, it appeared that students could essentially personalize a significant portion of their core requirements. For these reasons, the researchers could not make one-to-one comparisons between the core curricula at these four universities and the other LIS programs. Ultimately, using only course descriptions as data sources, the researchers were not able to determine which courses the average student completed after fulfilling the core requirements in these schools' programs. In these outlier cases, the authors labeled the curricula as "flexible core" and their data was not included in the comparative data sets and graphs. It should be noted that these schools appeared to offer courses throughout their programs that did in fact seem to cover all of the ALA's Core Competences, but not necessarily within the core curriculum.

Academic title

The academic title obtained on the completion of a degree program is typically Master of Science in Library and Information Science. US academic librarian status is usually not regulated by state or national bodies.

Results: Croatia

The Croatian authors analyzed three institutions—University of Osijek, University of Zadar, and University of Zagreb—where LIS degrees are offered. At the Bachelor's and Master's levels, Zagreb and Osijek have single and double major options, whereas Zadar has only a single major option.

Table 2. Croatian ECTS credit hours.

	Undergraduate		Graduate	
	Total ECTS credits (mandatory + elective)			
Institution	Single major	Double major	Single major	Double major
Osijek	213 (155 + 58)	–	60 (46 + 14)	–
Zadar	180 (145 + 35)	–	120 (108 + 12)	–
Zagreb	180 (126 + 54)	90 (74 + 16)	120 (53 + 67)	60 (56 + 12)

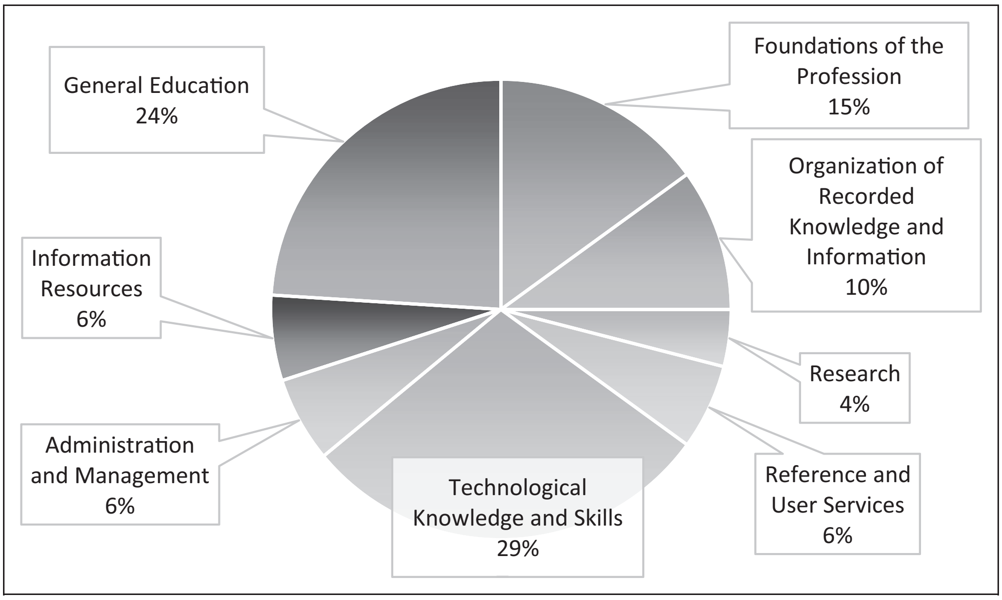

Figure 5. Croatian competences at the undergraduate level.

The requirements to complete a degree are expressed as European Credit Transfer and Accumulation System (ECTS) credits, and the workload at the Bachelor's level is similar at all three schools. Table 2 shows the minimum number of credits required at each Croatian institution and includes both mandatory and elective credits.

In addition to courses matching the ALA's Core Competences of Librarianship, every program has a group of courses that are categorized in this research as "General Education" (foreign languages, physical education, logics, etc.), which are mandatory at the undergraduate level but electives at the graduate level. The required courses at the undergraduate level are predominantly focused on two ALA competences—Technological Knowledge and Skills and Foundations of the Profession—and on the above-mentioned non-ALA competency of General Education (see Figure 5).

Although the percentages of credits obtained through the electives vary (17% to 30% of 180 courses in Zagreb, 19% in Zadar, and 27% in Osijek), these courses are mostly oriented to building the same set of competences as the required courses: Technological Knowledge and Skills (24%), Foundations of the Profession (19%), and General Education (15%).

Statistics (data for 2017–2018 and 2018–2019) regarding the continuation of LIS from the undergraduate to the graduate level show that 68% of students obtain only a Bachelor's degree in this field and go on to pursue a different Master's degree. The profile of students enrolled in graduate programs differs between the universities: in Osijek, 65% of students have a Bachelor's degree in librarianship, in Zadar 36%, and in Zagreb only 14% (meaning 86% of students have a Bachelor's degree in other disciplines).

At the graduate level, the minimum number of ECTS credits is 120 for single majors and 60 for double majors, and the percentages of required courses differ significantly. Required courses account for 90% in Zadar and 44% in Zagreb (for the single major option), and the remainder of the credits are obtained through elective courses. Competences related to Continuing Education and Lifelong

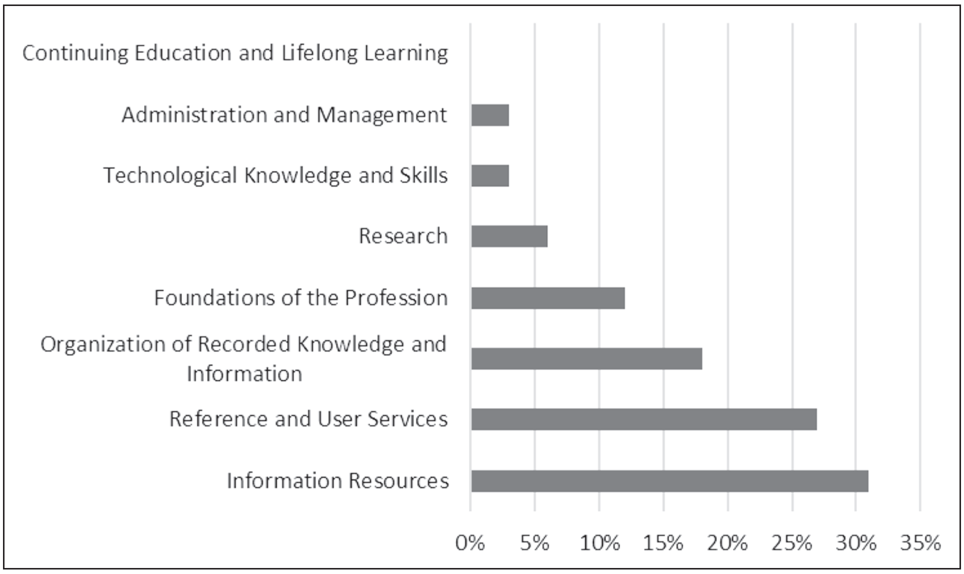

Figure 6. Croatian core competences at the graduate level.

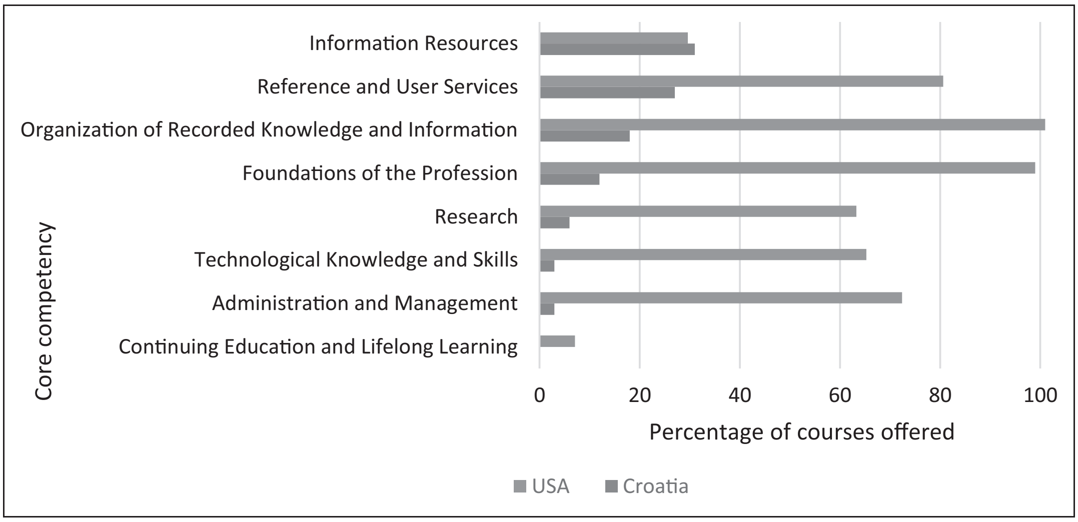

Figure 7. Comparison of core competences in Croatia and the USA.

Learning and General Education are completely excluded from the mandatory requirements. The required courses are exclusively oriented to the Information Resources and Reference and User Services competences. The distribution of the competences is shown in Figure 6.

Although it was not possible to gather statistics regarding the demand for each of the elective courses, it is still illustrative to mention the general orientation of these courses: they are focused on the categories of Foundations of the Profession (27%) and Technological Knowledge and Skills (22%).

Other degree requirements

All three institutions require an internship or practicum to complete the degree. At Zadar and Zagreb, a practicum is mandatory for students at both the undergraduate and graduate levels, but at Osijek it is only required at the undergraduate level. A thesis, on the other hand, is only required for those who have chosen a single major option since those who choose a double major may complete their thesis in the other subject area instead of LIS.

Academic titles

At both the universities of Zagreb and Osijek, Bachelor of Information Sciences and Master of Information Sciences programs are offered. The University of Zadar offers Bachelor of Librarianship and Master of Librarianship programs. Although this article does not include analysis of doctoral-level studies, a third title—PhD in Information and Communication

Sciences—illustrates the extent of the Croatian library nomenclature.

After obtaining an undergraduate and graduate degree and completing a year of apprenticeship, a librarian must pass a state qualifying examination (a professional license examination regulated at the national level) to be employed in any library position. A licensing examination is common for many professions in the public sector in Croatia. For library professionals, the examination is organized by the Ministry of Culture and Media or by the Ministry of Science and Education, depending on the type of library a candidate is employed in. The credential does not need to be updated and is not determined by formal education courses.

Discussion

Similarities and differences in the educational path that Croatian and US students follow in becoming librarians were discovered in this research, and a comparison can be seen in Figure 7. Before delving into the specifics, some broad comparisons need to be discussed.

Croatia's three institutions (Osijek, Zadar, and Zagreb) all offer Bachelor's degrees in LIS, whereas only 16 of the 53 US institutions offer Bachelor's degrees. Neither of the countries requires a LIS Bachelor's degree for acceptance into a graduate program. While the data for US Bachelor's degrees was outside the scope of this study, in Croatia it was found that 68% of LIS students obtained a Bachelor's degree only and then pursued a different Master's degree. There is no equivalency for US students. Additionally, all three Croatian institutions and the majority of the US institutions (36 of 53) offer a PhD in LIS. Again, this data was not collected for the study because a Master's degree is considered the highest degree for librarian status in both countries.

The data also demonstrates that graduate programs are customizable. The minimum required number of credit hours for US students is between 38% and 45% and, for Croatia, it is 23%. In Croatia, some of these required courses fall within a General Education category, which includes subjects such as foreign languages, physical education, and logistics. No such General Education courses exist in US graduate LIS programs, but the US programs offer a wide variety of other electives. As Mortezaie and Naghshineh (2002: 21) write, the "academic system demonstrates a surprising degree of flexibility" and "the number of elective courses outweighs the selective." This customization of coursework in both countries can allow students to develop niche expertise in their areas of interest.

The Foundations of the Profession competency provides the basis and history of what it means to be a librarian. This competency makes up 12% of core courses in the Croatian graduate programs and 19% of core courses in the US programs. At the graduate level, the Foundations competency ranks fourth among the other core competences for Croatian students and second for US students. It is of note that, in Croatia, the LIS undergraduate programs have a range of 7% to 20% of core courses in this competency. Students in Croatia have the opportunity to pursue LIS degrees at the undergraduate level, and thus their first interaction with what it means to be a librarian occurs at the Bachelor's level. In the USA, students enter a LIS program at the Master's level. Extrapolating this data, it can be seen that students in both countries have similar exposure to Foundations courses when they first enter a LIS program.

The competency that shows the largest difference between the two countries is Information Resources. In Croatia, this competency is represented in 31% of the core courses, whereas it only represents 6% of core courses in the USA. In Croatian Master's-level LIS programs, the mandatory courses are mostly oriented towards this competency. The small percentage of courses in the USA for this competency could indicate that US librarians are moving away moving away from these topics, or that this is a competency that requires more specialization. On a broader scale, this difference seems to indicate that Croatian librarians are more closely involved with the development and management of collections than US librarians.

The percentage of courses that falls within the Organization of Recorded Knowledge and Information competency is similar in Croatia (18%) and the USA (20%). This competency ranks third overall for Croatia and first for the USA. This indicates that indexing, classifying, cataloging, and organizing information is a necessary skill for librarians to develop in both Croatia and the USA.

At the graduate level, 3% of Croatian courses and 13% of US courses fall within the Technological Knowledge and Skills competency. Despite the difference in the percentage of courses, this competency ranks sixth for Croatia and fifth for the USA, indicating a similar importance in both countries. It is also necessary to note that, in Croatia, 29% of courses in the LIS Bachelor's programs fall within the Technological Knowledge and Skills competency. Taking this into account, this competency is important to Croatian librarians. It may also suggest that the importance of this competency is growing over time.

The change in courses offered within this competency could be an area of future study, especially in light of the 2020 global pandemic and shift to remote teaching and working.

The Continuing Education and Lifelong Learning competency is the lowest-ranking competency for both countries. This competency is non-existent in Croatian graduate LIS programs and represents only 1% of courses in the USA. This may indicate that this competency is emerging in the USA and is currently aspirational. It could also indicate that continuing education is not something that can be learned through a formal education process and that the competency is best met through on-the-job experience to keep skills up to date throughout a librarian's career. This is an area where further research is needed.

The final competency to be discussed is Administration and Management. Croatian LIS students have 6% of their courses covering this competency at the Bachelor's level and 3% at the Master's level. LIS students in the USA have 14% of their program courses devoted to this competency. This could indicate that US librarians are expected to take on more management or administrative duties than their Croatian counterparts. Anecdotal evidence from the authors suggests that it is often typical for a librarian to be the only professional in a library. In the USA, this may indicate that librarians are thus thrust into management roles early in their careers, while in Croatia there may be a perception that the library as an institution does not require managerial skills. Further study is needed to determine if this is the case and/or if this competency adequately prepares students for this role.

Other requirements, outside of coursework, exist in both countries. These can be described as a method to cumulatively evaluate students' work. In Croatia, all three institutions require a thesis from single major Master's LIS students, whereas in the USA only 14.3% of the institutions (7 of 49) require a thesis. This indicates that, in the USA, personal research is not emphasized as much for librarians. An internship/practicum is required in 66% of the Croatian institutions (2 of 3) and 26.5% of the US institutions (13 of 49). This could indicate that more Croatian librarians gain hands-on experience in libraries prior to graduation than US librarians. The final requirement is the creation of a capstone/portfolio. No Croatian institutions demand this and 44.9% of US institutions (22 of 49) have this as mandatory. It is interesting to note that the majority of US students can obtain a Master's in LIS by only completing coursework.

While this study has looked at the minimum educational requirements for students in Croatia and the USA to obtain a Master's in LIS, it is beneficial to note some other factors of interest for students achieving professional librarian status. After finishing an undergraduate and/or graduate program and a one-year apprenticeship, Croatian librarians are required to pass a professional license examination that is regulated at the national level in order to remain in their position. No such national examination exists for US librarians. Additionally, in the USA, there has been a trend to hire candidates for academic librarian positions who do not have a Master's degree in LIS. These candidates often have a combination of a non-LIS Master's or doctoral degree and/or professional library experience. Candidates for librarian positions in Croatia can be hired with a conditional contract if they hold a Master's degree in another field and complete a Master's in LIS within a defined period of time. While conclusions cannot be drawn from this study, this is worthy of future research.

Conclusion

The primary objective of this study was to fill a gap in the comparative library literature by identifying the commonalities and notable differences between LIS programs offered in Croatia and the USA. A thorough examination of LIS program requirements revealed many similarities between the two countries. For example, both countries share a strong emphasis on foundational courses in librarianship and both offer their students a variety of curricular options, resulting in highly individualized paths to professional librarianship. However, through this analysis, the authors found that most Croatian librarians go through a more structured process than their US counterparts, starting with a Bachelor's degree, continuing through a Master's program, and finishing with a licensure examination. This investigation also revealed that the two countries currently place greater emphasis on certain skill sets. Croatian library schools seem to value skills related to managing collections as well as strengthening their students' technological skills, whereas US library schools emphasize managerial skills and offer their students a great deal of flexibility—likely due to the wide variety of librarian positions available across the USA.

The results of this research could open other areas of inquiry. This research brings up questions regarding the political and historical influences on the centralization of higher education requirements generally, and in LIS fields more specifically. Further, state licensure is required for all librarians in Croatia, whereas, in the USA, licensure is required in certain states and only applies to school librarians. The findings may also assist library school administrators and educators in evaluating and updating their programs to address current and future professional needs.

Considering the budget cuts in higher education worldwide and due to the COVID-19 pandemic, comparisons such as this might serve as a blueprint for library school administrators to respond to and plan for future crises more effectively.

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Notes

1. See http://www.ala.org/educationcareers/accreditedprograms/directory
2. See https://hko.srce.hr/usp/index

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Appendix 1

A list of works the Croatian authors used as background for their part of the study.

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Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

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Abstract
This article investigates patterns of knowledge exchange in hybrid communities where virtual and face-to-face links of communication are complementary. The study framework is based on social capital theory. The role of social capital dimensions and motivational factors in fostering the exchange of different forms of knowledge is investigated at an individual level. The proposed theoretical model is tested through structural equation modelling, and the analysis is carried out on a sample of over 250 individuals belonging to the community of users of the National Library of Latvia. The results confirm most of the theoretical hypotheses, but with some unexpected results– such as the relevant role of motivational factors in fostering the exchange of complex forms of knowledge– highlighting the specific nature of hybrid communities.

Keywords
Hybrid communities, social capital, motivations, knowledge exchange, structural equation modelling, Latvia

Introduction

Recent years have witnessed the emergence of ‘hybrid’ communities, characterized by both digital and face-to-face network linkages. This phenomenon has relevant implications in organizational, sociological and cognitive terms, since communication channels influence not only the communication content, but also relationships between agents, the sense of belongingness to the community, and the psychological significance of communication.

In community studies, there is consensus among scholars about social assets being strong predictors of the effectiveness of knowledge and information exchange in communities. Hence, within the ongoing interdisciplinary debate on the extent to which online virtual communities can be substitutes for traditional geographical communities, a key issue is the extent to which such social assets, which are embedded within physical social networks, can be reproduced in virtual contexts. In other words, the issue amounts to investigating whether a virtual community can replicate the

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main features of a *community of practice* in terms of the social assets that are embedded in networks, and the cognitive and learning benefits related to social interaction.

While the cognitive benefits of hybrid communities are widely emphasized (Hampton and Wellman, 2003; Hine, 2020; Rainie and Wellman, 2012), the nature of the cognitive benefits and detriments in such communities when compared to different kinds of communication patterns is less clear. The efficiency in complementing physical and digital interaction does not say anything about the sense of belonging and trust, and the obstacles that characterize knowledge exchange. Furthermore, cognitive and perceptual abilities in hybrid contexts tend to mutually adjust through the use of digital tools (Risko and Gilbert, 2016), therefore presupposing a dynamic transformation of comprehension and communication structure in these communities, and generating not only benefits but also substantial costs, such as vulnerability to memory manipulation (Marsh and Rajaram, 2019; Risko et al., 2019).

In the present study, we attempt to identify the role of social capital and personal motivational factors in fostering knowledge exchange and growth within a hybrid community, in order to investigate the specificities of these dynamics in comparison to purely virtual and purely face-to-face interaction linkages. To this aim, we formulate a theoretical model on the basis of conceptual and empirical studies that apply social capital and social cognitive theory to the analysis of knowledge transfer in organizational units and virtual communities (Chiu et al., 2006; Tsai and Ghoshal, 1998), and studies of social capital (in particular, trust) accumulation in virtual communities (e.g. Usoro et al., 2007). The proposed model hypothesizes a positive effect of (relational and cognitive) social capital and motivational factors on the quality of knowledge exchange and the growth of individual knowledge.

Our model is tested on the basis of an individual-level survey carried out among members of the National Library of Latvia's user community, a hybrid intentional community focused on the exchange of cultural and historical heritage-related knowledge. Our empirical analysis is based on structural equation modelling for latent variables (Joreskog and Sorbom, 1979).

Theoretical framework

The adopted framework is based on (1) social capital theory and its applications in organizational studies and (2) the applications of social cognitive theory, social epistemology and social categorization theory to the study of hybrid and community-level communication. The chosen approach takes into account several core issues related to knowledge transfer in communities– in particular, the role of social assets, the reproducibility of such assets in virtual contexts, and the obstacles to access to knowledge.

Community: a tentative definition

A comprehensive definition of what counts as a 'community' is still lacking in the literature. We argue that what is common to all kinds of communities is the following features (see Ellison, 2007; Latour, 2005; Star, 1999):

- Collections of causal or associative links and nodes, whereby links and nodes can refer to human (in the sense of real, physical, co-presence interaction) or artificial agents (computational knowledge representations or digital knowledge repositories, such as libraries);
- Principles of interaction (including norms and goals) ranging from informal or implicit (e.g. a naive world view) to explicit and well-defined social rules;
- Impacts of format or channel– one and the same message can be perceived differently according to a different format, and humans typically interact differently in different formats (e.g. in digital communication, the online disinhibition effect transforms the way humans interact (Suler, 2004)).

Further, we assume that communities possess an epistemologically distinct concept or sense of agency that is a group-level cognitive structure (see Theiner et al., 2010). In-group generation effects driven by a sense of belongingness, perception of joint goals and coordinated individual contributions from the members constituting the group generate a group-level sense of social identity– a 'we-identity' (see Gilbert, 2004; Searle, 2008; Tomasello, 2009). Individual intentions at this level are highly interdependent (List and Pettit, 2011).

We can therefore distinguish between different levels of interaction– a group level that has features exceeding the individual level, and an individual level with properties that are not necessarily shared by larger groups: (a) subjective, partially idiosyncratic knowledge (subjective beliefs, world views); (b) inclusion of the representation of significant others in the representation of the self (Brewer and Gardner, 1996; Saribay and Andersen, 2007); and (c) important parts of the external environment the agent is involved in and interacts with, such as external devices (Clark, 2011;

Menary, 2010; Risko and Gilbert, 2016; Wilson, 2004). Although each level contributes to the socio-cognitive pattern of interaction, it has different dynamics, structure and overall results.

Hybrid communities

Hybrid communities have complimentary virtual (digitally mediated) and physical (in the sense of a physical co-presence) communication links (Gaved and Mulholland, 2005). Terminologically, the complementary parts of hybrid communities are also called digital (online) and analogue (offline). Although these terms are not synonymous, they refer to the same two parts of a complex communication structure. A crucial intuition is also that digital links do not entirely replace analogue links, but rather they complement one another. Furthermore, there might be parts of a system that only operate digitally (or analogously).

Hybrid communities shape the sense of self of the individual humans involved in those networks. 'Self' might be seen as a split structure (Turkle, 2005), complex and with different context-dependent self-aspects (McConnell, 2011), or as the single self that is shaped by the format of communication (Suler, 2004). In all cases, there seems to be a crucial role played by external factors in shaping cognitive processes. Digital devices, knowledge repositories and other individuals represent functionally important links in the hybrid conception of communication and the self (Clark, 2011; Donald, 1991; Menary, 2010).

The cognitive benefits of hybrid communities have been less explored. On the one hand, in hybrid communities, trust mechanisms operate that are typical of face-to-face social communities. On the other hand, such communities have peculiar characteristics in terms of network infrastructure and interaction tools (Gaved and Mulholland, 2005). It has been argued that the coexistence of virtual and physical channels of communication may strengthen social dynamics, fostering learning processes that are lacking in face-to-face communities (Grabher and Ibert, 2013). Moreover, hybrid communities generate complex affective impacts between and among their members, which can generate large-scale emotional contagion– for example, in digital social networks such as Facebook and Twitter (Goldenberg and Gross, 2020).

Finally, it can be assumed that hybrid communities have a group-level sense of agency. This implies that, although at the individual level discrepancies and conflicting opinions can be present, it is also possible that at the community level there are several shared group-level beliefs, aims or attitudes that are induced by the sense of joint commitment (Gilbert, 2004).

Social capital

The concept of social capital, which is widely adopted in the social sciences, indicates those kinds of social assets– from trust to obligations to norms– that are embedded within various patterns of social interaction and networking among and between individuals and groups, and can facilitate access to benefits of different kinds for those individuals and groups (Bourdieu, 1986; Burt, 2001; Coleman, 1988; Putnam, 1993). In the domain of organizational science, social capital has been adopted as a conceptual and analytical tool in order to study intra-organizational dynamics of knowledge exchange and enrichment among and between individuals and groups, at different levels of analysis. In this context, Nahapiet and Ghoshal (1998) propose an influential taxonomy of social capital, identifying three main dimensions: the structural part (network linkages), which has an enabling effect for the access of parties for knowledge exchange; the relational part (trust, shared norms), which fosters motivation to exchange knowledge; and the cognitive part (shared vision, language, codes, narratives), which enables knowledge combination capability. On the basis of this framework, Tsai and Ghoshal (1998) find empirical evidence for the central role of the relational component of social capital (fostered by the two other components) in enabling the intra-organizational exchange of cognitive resources. Further studies (e.g. Dirks and Ferrin, 2001; Levin and Cross, 2004) have confirmed the crucial role of both trust and other components of social capital in knowledge exchange in organizational communities, and the interrelation of the dimensions of social capital.

Similarly, virtual community studies have focused on the reproducibility of relational social capital, which is considered a fundamental resource for the sharing of benefits among community members. The issue of reproducibility is controversial in both social and cognitive terms, since face-to-face interaction and geographical proximity are widely considered as important conditions for social capital accumulation and, in particular, for the transfer of context-specific knowledge (Camagni and Capello, 2005).

Physical and virtual communities: social assets and cognitive dynamics

The study of virtual communities from the point of view of the reproducibility of social assets is widespread in sociology and organizational sciences (Rheingold, 1993). Scholars generally agree on the reproducibility of trust as the key factor behind knowledge and information exchange. Ridings et al. (2002) state that trust enhances information sharing in virtual communities; trust is, in turn, enhanced by perceived responsive relationships, a disposition towards trust, and a belief that others confide personal information. Usoro et al. (2007) also state that trust is an antecedent to knowledge sharing.

In social-capital-based cognitive studies, however, the structural–relational dichotomy has been deemed insufficient for analysing the impact of social capital on knowledge exchange and transfer. The abovementioned taxonomy proposed by Nahapiet and Ghoshal (1998) adds a cognitive component, representing the mutual compatibility of agents with regard to a shared vision, culture and language.

Chiu et al. (2006) empirically study the effect of social capital and personal motivation on knowledge sharing in virtual communities, combining Nahapiet and Ghoshal's (1998) taxonomy of social capital and Bandura's (1989) social cognitive theory. Cognitive social capital, community expectations and trust are found to affect the quality of exchange; structural social capital, the norm of reciprocity and identification, and community expectations affect the intensity of exchange.

The issue of inner barriers: the nature of knowledge

Social capital studies investigating knowledge-transfer dynamics have rarely addressed such issues from an epistemological perspective. However, there is a strong case for considering different forms of knowledge when investigating cognitive dynamics. Nonaka's (1991, 1994) studies on organizational learning acknowledge that information and knowledge are two distinct concepts, representing resources which may require different social learning patterns (Inkpen and Tsang, 2005). Moreover, although most debates on the dynamics of knowledge exchange in organizational studies are focused on the role of agents' social features and attitudes (of an affective and cognitive nature), knowledge-exchange dynamics have also been found to be crucially affected by the intrinsic nature of knowledge– that is, its inner complexity (Szulanski, 1996).

Theoretical model

Main tenets

The aim of this empirical analysis is the investigation of the interplay existing in a hybrid community between social capital, motivational factors, the quality of knowledge exchange and the growth of individual knowledge among community members. The adopted framework partly relies on the model developed by Chiu et al. (2006) in investigating knowledge transfer in virtual communities, taking into account the contribution of both social capital and personal motivation to the intensity and quality of knowledge transfer. The hypotheses of Nahapiet and Ghoshal (1998) and the findings of Tsai and Ghoshal (1998) on the correlations among different social capital dimensions and their effects on inter-unit knowledge sharing in large organizations are also a basis for the model.

The adopted knowledge taxonomy is based on two widely influential dichotomies: (1) Russell's (1998) distinction between experiential and declarative knowledge– that is, knowledge derived by experience, of a procedural nature (*knowledge by acquaintance*), and knowledge derived from notions and data sources, of a declarative nature (*knowledge by description*)– and (2) Nonaka's (1994) distinction between information (organized data) and knowledge in a strict sense– that is, information-sustained belief (see also Devlin, 1995; Dretske, 1981). The identification of different forms of knowledge and the presence of a factor measuring the quality of knowledge exchange allows one to take into account the relevance of barriers to access that are related to the nature of knowledge itself (see Szulanski, 1996).

Variables

The choice of the dimensions of social capital is based on Nahapiet and Ghoshal's (1998) work, which has provided a widely influential taxonomy aimed at investigating the cognitive benefits of social capital:

- *Structural social capital*, or the social networking structure of a community.
- *Relational social capital*, or the positive attitudes among members of a community (e.g. trust towards community members). Putnam (1993) defines it as consisting of trust and shared norms. Nahapiet and Ghoshal (1998) attribute to it a crucial motivating role for knowledge-exchange dynamics.
- *Cognitive social capital*, or shared codes, language and narratives among members of a community (Nahapiet and Ghoshal, 1998). With regard to knowledge-exchange dynamics, it is associated with knowledge combination capability and relative absorptive capacity (Lane and Lubatkin, 1998).

Such a taxonomy is extremely influential in studies investigating knowledge sharing and enrichment in organizations and communities. However, network-based approaches to social capital accumulation, focusing on social capital as a set of individual or group-owned resources rather than collective ones (e.g. Bourdieu, 1986; Burt, 2001; Portes, 1998), define social capital as the set of assets (i.e. the relational and cognitive dimensions) that are embedded within networks, rather than the network resources themselves. Therefore, in the context of the present micro-level analysis, structural capital is not included in the theoretical model; the emphasis is on the relational and cognitive dimensions and the way in which they interact with motivational factors and knowledge sharing.

Personal motivation (following Chiu et al., 2006) is articulated in two subdimensions: (1) motivation oriented towards community benefits, implying a sense of belonging to the community and sense of collective agency, and (2) motivation oriented towards individual personal benefits.

Two dimensions of knowledge are included in the model, on the basis of Nonaka's (1994) and Russell's (1998) dichotomous taxonomies:

- *Declarative knowledge*, or knowledge about facts, consisting of information and knowledge about sources of information. It is a simple form of knowledge, supposedly not characterized by relevant inner barriers such as conceptual complexity or tacitness; the main barriers to its access are related to the social context and the attitudes and features of the actors involved.
- *Complex knowledge*, or, in the context of the present model, knowledge about procedures, and knowledge about laws and principles. It is supposed to be characterized by relevant inner barriers, since it requires intellectual elaboration and is usually expressed in coded forms and languages. It can be both tacit and explicit, and may be linked to Polanyi's (1967) and Nonaka and Takeuchi's (1995) tacit knowledge, and to Nonaka's (1994) information-sustained belief.

Hypotheses

We assume that the shared perception of goals, norms, principles and sense of 'we-identity' that characterizes communities contributes to the generation of both relational and cognitive social capital. Further, we assume that the stronger the sense of 'we-identity' and shared goals, the stronger the links are within the hybrid community. We also assume that this process is co-determined by the involved channels of communication. Social capital dimensions and personal motivation are supposed to enhance the intensity and quality of knowledge exchange and, hence, facilitate the growth of individual knowledge. As mentioned above, most of the hypotheses are based on the findings of Tsai and Ghoshal (1998) in the context of inter-unit knowledge exchange in large organizations, and on Chiu et al.'s (2006) study of knowledge transfer in virtual communities. The hypothesized model is a recursive model (Bollen, 1989) in that the effects are structured according to a causal chain from left to right, without loop effects.

Relations between social capital dimensions

Hypothesis 1. Cognitive social capital positively affects relational capital. Tsai and Ghoshal (1998) find support for such a hypothesis, which implies the positive effect of a shared vision on perceived trustworthiness. In other words, shared goals and norms positively relate to trust accumulation.

Effects of social capital on personal motivation

Hypothesis 2. Relational capital positively affects community-oriented motivation. This hypothesis assumes that a trustful climate enables community-oriented behaviour. Notwithstanding the channels of communication (analogue, digital, hybrid), trust among community members shapes the sense of community belonging.

Hypothesis 3. Cognitive social capital positively affects community-oriented motivation. This hypothesis assumes that a common language and terminology, and the perception of common interests, may lead to stronger community linkages and sense of belonging.

Hypothesis 4. Cognitive social capital positively affects personal-benefits-oriented motivation. This hypothesis assumes that a common language and terminology, and the perception of common interests, shared principles and norms, may lead to behaviour with the aim of collecting useful information and knowledge for personal benefit. Group-level interaction and self-identification support personal-level interaction.

Effects of social capital and personal motivation on knowledge quality

Hypothesis 5. Relational social capital positively affects the quality of knowledge exchange. Trust is found to be an antecedent to knowledge exchange in both organizations (Tsai and Ghoshal, 1998) and virtual communities (Ridings et al., 2002), although we assume that a hybrid community contains features of both organizations and virtual communities. Chiu et al. (2006) find empirical evidence that various dimensions of relational capital affect not only the intensity, but

Table 1. Sample demographics.

	Sample composition	Latvian population
Average age (years)	41.4	41.6 (Population and Housing Census, 2011)[a]
Female/male ratio	4.03	1.19 (Population and Housing Census, 2011)[b]
Ethnic groups	Latvians: 93.7% Other: 6.3%	Latvians: 62.1% Other: 37.9% (Population and Housing Census, 2011)[c]
Education level	84.6%	39.4% (Organisation for Economic Co-operation and Development [OECD], 2015)
Average net income (euros)	564	488 (Latvia Central Statistical Bureau, 2012)

[a]See Central Statistical Bureau of Latvia (2016).
[b]See Central Statistical Bureau of Latvia (2016).
[c]See Central Statistical Bureau of Latvia (2016).

also the quality of knowledge exchange in virtual communities.

Hypothesis 6. Cognitive social capital positively affects the quality of knowledge exchange. 'Relative absorptive capacity' (Lane and Lubatkin, 1998) is found to be a significant factor behind knowledge exchange (Szulanski, 1996).

Hypothesis 7. Community-oriented motivation positively affects the quality of knowledge exchange. This corresponds to the idea that a sense of 'we-identity' positively shapes the quality and effectiveness of interactions.

Hypothesis 8. Personal-benefits-oriented motivation positively affects the quality of knowledge exchange. Various studies (e.g. Butler et al., 2002; Zhang and Hiltz, 2003) suggest that personal expectations (both egoistical and altruistic) play a relevant role in the willingness of people to share knowledge within communities and organizations. Chiu et al. (2006) find partial empirical support for such a hypothesis.

Effect of social capital on individual knowledge growth

Hypothesis 9. Cognitive social capital positively affects complex knowledge growth. This hypothesis assumes that interacting with people who have the same background, vision, goals, norms and competences may lead to an increase in procedural and conceptual skills independently from motivational dynamics.

Effects of knowledge-exchange quality on individual knowledge growth

Hypothesis 10. Knowledge-exchange quality positively affects the growth of declarative knowledge. This hypothesis assumes that information acquisition and growth is affected by the effectiveness of information exchange.

Hypothesis 11. Knowledge-exchange quality positively affects the growth of complex knowledge. Szulanski (1996) finds evidence for causal ambiguity being the main barrier to accessing knowledge in organizations. On such a basis, this hypothesis assumes that personal knowledge growth is affected by the quality (in terms of reliability, accurateness and completeness) of knowledge sharing.

Hypothesis 12. Declarative knowledge growth affects complex knowledge growth. Information growth is supposed to be a necessary factor behind the growth of more complex forms of knowledge (Nonaka, 1994).

Method

Study context and data

The theoretical model was tested on the basis of a survey among the members of the National Library of Latvia's (the largest library institution in the Baltic states) user community in the autumn of 2012. This community has several thousand habitual members, who are based in Latvia and abroad, and interact both in real life and through virtual online platforms (portals, forums, social networks) in order to exchange information, materials and documents related, in particular, to the cultural and historical heritage of Latvia. As an intentional community characterized by a hybrid infrastructure and an intense exchange of information and knowledge among members, it is a very suitable case study for the scope of this article.

The analysis described in this article is based on a sample of 267 individuals; however, due to missing data, the structural analysis is based on 252 observations. The demographic data of the sample is compared with general Latvian population statistics in Table 1. Compared to the national average, the respondents in the sample generally have a higher level of education and income, are overwhelmingly ethnic Latvians (in the context of a highly multi-ethnic country) and are mainly female. Most of these features can be tentatively related to the nature and scope of the community– that is, knowledge and information exchange about topics of specific ethno-cultural interest.

The questionnaire was structured in sections corresponding to the latent variables as outlined in the previous paragraphs (social capital dimensions, motivational attitudes, knowledge-exchange quality and knowledge growth), with a subset of questions/statements associated with each hypothesized variable.

Measurement of variables and data analysis

The sets of statements that were used to evaluate the latent variables are listed below. The respondents' answers were measured using a 5-point Likert scale (Likert, 1932). Given the structure of the theoretical model and the psychometric nature of the items, the chosen approach for the analysis was structural equation modelling for latent variables (Joreskog and Sorbom, 1979). The analysis was carried out using Amos 20.0, integrated in SPSS 20.0.

Cognitive social capital. This was measured through three statements: 'Members of the community use understandable narrative forms when adding posts/messages'; 'Members of the community have a similar educational background'; and 'Members of the community share common memories about the past'.

Relational social capital. This was measured through six statements: 'Members of the community behave in a reliable manner'; 'Members of the community behave in a trustful manner'; 'Members of the community act for the common good'; 'Members of the community do not take advantage of others'; 'I feel a sense of belonging towards the community'; and 'I have a feeling of closeness with regard to the community'.

Motivation. Two scales were used to measure motivation, related to community-oriented motivation and personal-benefits-oriented motivation. Community-oriented motivation was measured by three items: 'Sharing things that I know with community members makes me satisfied'; 'Sharing things that I know with community members makes the community grow'; and 'Sharing things that I know with community members makes the community successful'. Personal-benefits-oriented motivation was measured by two items: 'I use the National Library of Latvia community to obtain useful information' and 'I use the National Library of Latvia community to increase my knowledge'.

Quality of knowledge sharing. This was measured through three items: 'The knowledge shared by members is reliable'; 'The knowledge shared by members is accurate'; 'The knowledge shared by members is complete'.

Individual knowledge growth. Two scales were considered: declarative knowledge growth and complex knowledge growth. Declarative knowledge growth was measured through the following three items: 'Interaction with the National Library of Latvia community helped me increase my knowledge about specific facts and topics'; 'Interaction with the National Library of Latvia community is a relevant source of information for me'; and 'Interaction with the National Library of Latvia community helped remind me of past events that I had forgotten/did not remember well'. Complex knowledge growth was measured through the following three items: 'Interaction with the National Library of Latvia community helped me increase my critical thinking'; 'Interaction with the National Library of Latvia community helped me understand connections between events'; and 'Interaction with the National Library of Latvia community helped me increase my skills in solving practical issues'.

Results

The results support the significance of nine of the hypotheses, whereas three are rejected: cognitive social capital is not found to be a relevant factor behind personal-benefits-oriented motivation-building; cognitive social capital is not found to be a relevant factor behind the quality of knowledge sharing; and the quality of knowledge exchange is not found to be a relevant factor behind complex knowledge growth.

In addition, five unexpected significant direct effects were found on the basis of the analysis of the residuals and modification indexes: relational social capital positively affects personal-benefits-oriented motivation; cognitive social capital negatively affects declarative knowledge growth; community-oriented motivation has a positive direct effect on both declarative and complex knowledge growth; and personal-benefits-oriented motivation positively affects declarative knowledge growth.

The adaptation of the modified model (including unexpected significant effects) to the data is acceptable (chi-square fit statistics/degree of freedom = 1.749;

Table 2. Standardized direct effects (structural part).

Hypothesis	Standardized direct effect and significance
1. Cognitive social capital → Relational social capital	.239***
2. Relational social capital → Community-oriented motivation	.515***
3. Cognitive social capital → Community-oriented motivation	.226***
4. Cognitive social capital → Personal-benefits-oriented motivation	.029
5. Relational social capital → Knowledge-sharing quality	.361***
6. Cognitive social capital → Knowledge-sharing quality	−.035
7. Community-oriented motivation → Knowledge-sharing quality	.230**
8. Personal-benefits-oriented motivation → Knowledge-sharing quality	.254***
9. Cognitive social capital → Complex knowledge growth	.153**
10. Knowledge-sharing quality → Declarative knowledge growth	.336***
11. Knowledge-sharing quality → Complex knowledge growth	−.007
12. Declarative knowledge growth → Complex knowledge growth	.346***
Unexpected effects	**Standardized direct effect and significance**
Relational social capital → Personal-benefits-oriented motivation	.579***
Cognitive social capital → Declarative knowledge growth	−.152**
Community-oriented motivation → Declarative knowledge growth	.294***
Community-oriented motivation → Complex knowledge growth	.460***
Personal motivation → Declarative knowledge growth	.425***

**Significant at 95% confidence level (error probability < .05).
***Significant at 99% confidence level (error probability < .01).

Table 3. Standardized direct effects (measurement part).

Effect	Standardized direct effect and significance
Cognitive social capital → Understandable narrative forms	.797***
Cognitive social capital → Common educational background	.852***
Cognitive social capital → Common memories	.532***
Relational social capital → Reliable behaviour	.563***
Relational social capital → Trustful behaviour	.680***
Relational social capital → Members act for the common good	.641***
Relational social capital → Members do not take advantage of others	.617***
Relational social capital → Sense of belonging towards the community	.600***
Relational social capital → Feeling of closeness towards the community	.438***
Community-oriented motivation → Sharing knowledge makes me satisfied	.759***
Community-oriented motivation → Sharing knowledge makes the community grow	.540***
Community-oriented motivation → Sharing knowledge makes the community successful	.510***
Personal-benefits-oriented motivation → I use the community to obtain useful information	.672***
Personal-benefits-oriented motivation → I use the community to increase my knowledge	.928***
Knowledge quality → Shared knowledge is reliable	.832***
Knowledge quality → Shared knowledge is accurate	.944***
Knowledge quality → Shared knowledge is complete	.886***
Declarative knowledge growth → Increased knowledge about facts	.806***
Declarative knowledge growth → Relevant source of information	.838***
Declarative knowledge growth → Reminder of past events	.078
Complex knowledge growth → Critical thinking	.863***
Complex knowledge growth → Understanding connection between events	.727***
Complex knowledge growth → Increasing practical skills	.712***

***Significant at 99% confidence level (error probability < .01).

normed fit index = .879; comparative fit index = .944; root-mean-square error of approximation = .055). Moreover, the squared multiple correlations are relatively high, implying that the explicative power of the model with regard to individual knowledge growth dynamics is good. Tables 2, 3 and 4, respectively, summarize the standardized direct effects for the structural part of the model; the standardized direct effects for the measurement part of the model; and the squared multiple correlations. Figure 1 graphically represents the structural model (the causal linkages between the latent variables).

Discussion

The results appear to support some common findings in organizational and community studies. However, some unexpected effects are found, which may be due to the specific nature of hybrid communities. Among the expected effects, social capital dimensions are found to positively affect (either directly or indirectly) knowledge-exchange quality and individual knowledge growth. This confirms the findings of several social-capital-based studies in organizational science (Chiu et al., 2006; Tsai and Ghoshal, 1998). The cognitive and relational social capital dimensions play different roles with regard to the investigated dynamics. In particular, relational social capital is a relevant factor behind information access and knowledge sharing mainly in an indirect way (by fostering both collective and personal motivation, and the quality of knowledge exchange). This is consistent with the vast body of literature focusing on trust and relational social capital as the main driving force behind knowledge transfer in both physical and virtual communities. The role of cognitive social capital is both direct and indirect, and ambiguous to some extent. Its indirect effect consists of fostering both relational social capital and collective motivation; this seems to mean that a common background and vision fosters a sense of community and cohesion. Moreover, a significant positive direct effect on the exchange of complex knowledge is also found, but it goes together with a negative impact on declarative knowledge. In other words, 'relative absorptive capacity' is an enabling asset for the transfer of conceptual and procedural knowledge, but can be an obstacle with regard to the exchange of information.

Some of the most interesting results relate to the role of motivational factors. Unexpectedly, community-oriented motivation appears to be a direct

Table 4. Squared multiple correlations.

Endogenous variable	Squared multiple correlation
Relational capital	.053
Community-oriented motivation	.348
Personal-benefits-oriented motivation	.347
Knowledge-exchange quality	.475
Declarative knowledge growth	.676
Complex knowledge growth	.580

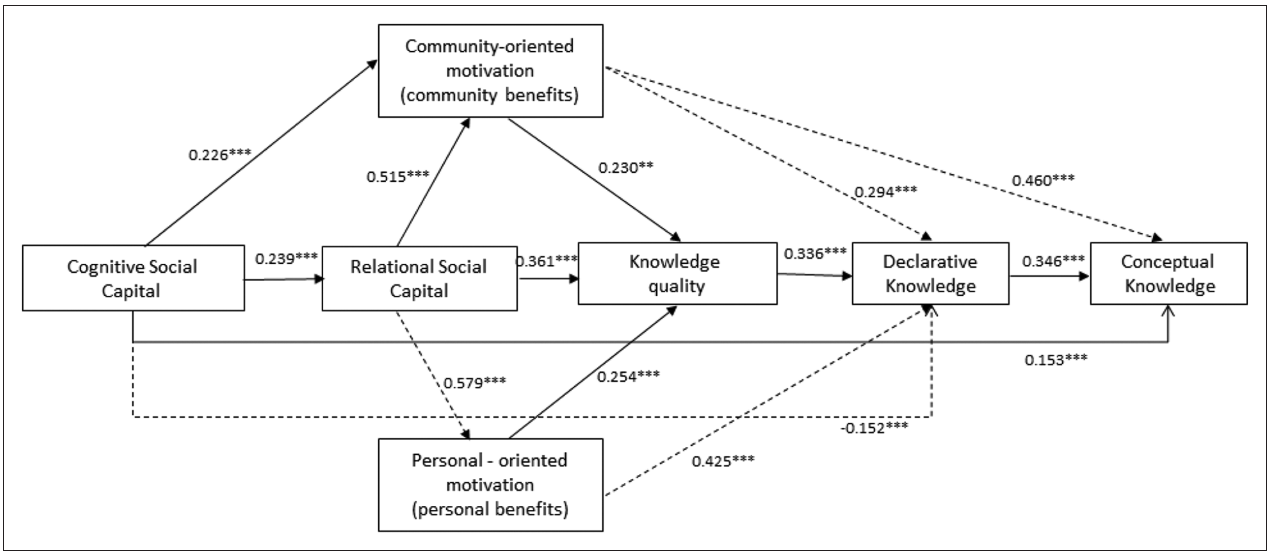

Figure 1. Structural model results: standardized direct effects.
Note: Solid lines indicate significant effects and broken lines indicate unexpected significant effects.
**Significant at 95% confidence level (error probability < .05).
***Significant at 99% confidence level (error probability < .01).

predictor of individual knowledge growth (both declarative and complex) and personal-benefits-oriented motivation has a positive impact on declarative knowledge. Therefore, motivation seems to play a more relevant role than the quality of knowledge sharing in enhancing access to knowledge. Such a finding partially contradicts Szulanski's (1996) study, which identifies inner barriers to knowledge as more relevant than motivational barriers; on the other hand, it supports the conception of the collaborative and collective epistemic agency of social communities (Gilbert, 2004; Tomasello, 2009).

Overall, the results point to the rich variety of social patterns of knowledge access and growth. In particular, social capital is found to affect knowledge sharing and growth in both direct and indirect ways. This may support Wellman's (2001) and Hampton and Wellman's (2003) claims about the positive complementary role played by information and communications technologies and face-to-face contact in fostering socio-cognitive dynamics in communities– for example, information and communications technologies may foster weak ties that span structural holes (see Burt, 2000).

Finally, it is necessary to mention the implications of the results with regard to the nature of hybrid communities. The present study provides support for the hypothesis of the impact of the community format on the infrastructure, which, in turn, causes a complex pattern of knowledge transfer in the life space of an individual. Every community has factors that generate its identity (a sense of belonging and perception of in-groups and out-groups). It seems that the differences in format do not determine the strength and saliency of the social identity of a community, but they do determine the overall pattern of knowledge transfer among its members.

The results also seem to provide support for the assumption that the social structure represented in identity communities is the result of the interaction between different, simultaneously existing and interacting, domains and formats. The coexistence of digital and physical domains, in the case of hybrid communities, seems to generate specific characteristics that are not typical of digital or physical communities alone.

In terms of practical guidelines for the investigated community, the significant role of motivational factors– even 'egoistical' ones– in affecting knowledge-sharing quality and individual knowledge growth may imply that there is significant room for improvement in terms of the cognitive benefits for members of the community through the promotion of individual engagement, even beyond the boundaries of the common background and shared language/codes represented by cognitive social capital. Fostering trust, and relational capital in general, among community members appears to be a crucial factor in fostering both motivation and the quality of knowledge sharing.

Limitations and implications for future research

The present study has some limitations. First, it is unclear whether the results can be extended to all types of hybrid communities due to the specific 'non-organizational' features of the community under consideration (see Chiu et al., 2006). Second, the results could be sensitive to socio-demographic and socio-economic variables such as age (Pfeil et al., 2009), income (Grootaert and Van Bastelaer, 2002) and gender (Silvey and Elmhirst, 2003), which have been found to affect social capital dynamics in many contexts. Sensitivity analysis based on such control variables was not carried out in the present study due to the small sample size. This would definitely be a direction to take for further studies.

Finally, how differences in community format determine a sense of agency is an open issue, which could be investigated by a longitudinal study of a hybrid community, in order to discover differentiation, integration and restructuring effects in the life space and in- and out-group generation; a detailed analysis of the psychological reality of hybrid versus virtual or physical links, and the effects of their contagions on human behaviour, in order to discover what counts as a psychologically and cognitively real community (Centola, 2018; Lewin, 1936; Suler, 2016); or an investigation of the impacts of the spatial representation of communication networks on communities of different scales and formats (Peer et al., 2020).

Data availability statement

The data on which this study is based is available from the authors on reasonable request.

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Knowledge management, organizational culture and job performance in Nigerian university libraries

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Abstract

The purpose of this study was to investigate the mediating effect of organizational culture on the relationship between knowledge management practices and the job performance of academic librarians in university libraries in Nigeria. The study employed a quantitative research methodology. A total of five hypotheses were proposed for testing, and a conceptual model was developed to test these hypotheses for significance at the .05 level. A questionnaire survey was used and a total of 230 academic librarians agreed to participate in the study. The data collected was analysed with the aid of SPSS. The results of the study reveal that knowledge management and organizational culture made positive and significant contributions to job performance. The results of the study also provide compelling evidence in support of the impact of organizational culture on the relationship between knowledge management and the job performance of academic librarians in university libraries in Nigeria.

Keywords

Knowledge management, services to user populations, organizational culture, job performance, academic librarians, university libraries, Nigeria

Introduction

Academic libraries in universities in Nigeria are making positive contributions to the realization of the missions of their parent institutions. They also contribute to knowledge generation (Adeniran, 2010) and provide bibliographic and innovative services to a number of library users (Amusa et al., 2013). It is important to note that the extent to which academic libraries provide services reflects the quality of teaching, learning and research in the university system (Aina, 2004).

As noted by Amusa et al. (2013), certain factors can affect the extent of the bibliographic and innovative services provided by academic libraries in Nigerian universities. These factors include library personnel (Amusa et al., 2013), a stress-free environment (Roelofsen, 2002), the work environment (Opperman, 2002) and job performance (Johari and Yahya, 2009). Johari and Yahya (2009) state that, apart from being one of the indicators of managing organizational performance, job performance has become a source of competitive advantage because it helps to promote organizational effectiveness. Presently, the library operational environment is changing rapidly due largely to work-related and technological factors. Consequent on this, it has been argued that one of the matters arising from this changing environment is job performance (Ugwu, 2018). According to Zaman et al.

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(2014: 529), job performance is concerned with the productivity of an individual's work-related behaviour. Performance is important because of its contribution to overall organizational effectiveness. Job performance has been found to be related to a number of factors, such as leadership style (Uddin et al., 2014), knowledge management (Lee and Choi, 2003), information technology skills (Oduwole, 2004) and organizational culture (Nguyen and Mohamed, 2011). In Nigeria, for instance, studies on job performance have focused on its relationship with the work environment (Kampert, 2008), gender differences (Osarenren and Ogunleye, 2009), organizational commitment (Amusa et al., 2013), personal factors (Ugwu and Ugwu, 2017) and work environment factors (Babalola, 2012). However, these studies have revealed that there exists poor job performance among librarians, due to a lack of dedication and commitment to their duties (Amusa et al., 2013). Akor (2009) found that the job performance of academic librarians in government-owned universities in North Central Nigeria was at a low level. It is, then, the assumption of this article that knowledge management can address this disappointing trend. Previous studies on the role of knowledge management in job performance, especially in the public sector, have indicated that employees with knowledge management skills were more positive towards their job performance, and that knowledge management significantly influenced job performance (Mustapa and Mahmood, 2016). Further, knowledge management practices constitute contextual features of the work environment that can enrich a job and increase job satisfaction, which invariably leads to good job performance (Morgeson and Humphrey, 2006). It has also been argued that failure to understand the profound effect of culture on employee and organizational performance could lead to poor employee and organizational performance (Omukaga, 2016).

However, while some evidence exists to support the links between knowledge management and job performance, and between organizational culture and job performance, the combined study of all these concepts has hitherto been lacking. This is the gap that this study intends to fill. To address this obvious gap, the following four research questions were formulated:

1. What is the relationship between knowledge management practices and the job performance of academic librarians?
2. To what extent does organizational culture relate to the job performance of academic librarians?
3. What is the relationship between knowledge management practices and organizational culture?
4. How does organizational culture influence the relationship between knowledge management and the job performance of academic librarians?

Literature review and development of hypotheses

Concept of knowledge management

Knowledge management has been defined as a method of management that governs the creation and utilization of both tacit and explicit knowledge in an organization (Ajiferuke, 2003; Newman, 1991; Shanhong, 2000). It has also been defined as a process or practice of creating, acquiring, capturing, sharing and reusing organizational knowledge (know-how) to improve performance and achieve the goals and objectives of an organization (Abell and Oxbrow, 2001; Davenport and Prusak, 1993; Jain, 2007; Townley, 2001; White, 2004). In a more practical sense, knowledge management may be defined as the capabilities with which communities within an organization capture the knowledge that is critical to them, continuously improve it and make it available in the most effective manner to people who need it, so that they can exploit it creatively to add value as a normal part of their work (Butler, 2000; Hayes, 2004; Skyrme and Amidon, 1998). In terms of its acceptability, Mustapa and Mahmood (2016) state that knowledge management has been widely accepted and acknowledged as one of the most crucial sources of competitive advantage among academicians and information professionals. Moballeghi and Galyani Moghaddam (2011) have described knowledge management as the acquisition, sharing and use of knowledge within organizations, including learning processes and management information systems. Basically, the simplest definition of knowledge management, by Moballeghi and Galyani Moghaddam (2011), is sharing what we know with others. The most important thing in all these definitions is the emphasis on human know-how and how it brings value to an organization.

The literature on knowledge management has been found to contain many varied demarcations of knowledge management practices. For instance, Haqiqat-Monfared and Hooshyar (2010) have identified four knowledge management practices: creating knowledge, maintaining knowledge, transferring knowledge and using knowledge. Both Iqbal et al. (2019) and Syed et al. (2020) have demarcated knowledge management practices as actions that relate to knowledge creation, acquisition, storage, sharing and utilization or application. In this study, the knowledge management practices as articulated by Islam et al. (2017) were adopted – namely, knowledge capture, knowledge sharing and knowledge application. Knowledge capture is a knowledge activity that allows employees to capture tacit and explicit knowledge from the internal as well as external environment. The operational indicators of knowledge acquisition include collecting information about the needs and wishes of clients, conducting research to explore future possibilities, attending training programmes, and developing new methods and approaches for service delivery (Filius et al., 2000). Knowledge sharing refers to the transfer of tacit and explicit knowledge among employees within and outside the organization. Many organizations use knowledge sharing as a tool to leverage their intellectual assets (Masa'deh, 2012). Knowledge sharing benefits an organization in several ways, such as improving its performance, customer services and innovative capacity (Cao and Xiang, 2012; Ma et al., 2008; Vorakulpipat and Rezgui, 2008). The operational indicators of knowledge sharing or transfer include coaching and mentoring new employees, organizing regular meetings to discuss professional matters, rotating staff on the job, and holding meetings from time to time to discuss methods of working (Filius et al., 2000). Finally, knowledge application refers to the use of knowledge gained from inside or outside the organization for the creation of new knowledge or other organizational gains. The operational indicators of knowledge application include conducting research before developing new services, using the experiences of clients to improve services, encouraging employees to use their abilities and skills in a creative manner, marketing the organization's new products and services, promoting knowledge internally and being committed to the development of new services (Filius et al, 2000; Islam et al., 2017).

Concept of organizational culture

Every organization has a culture. Ahmady et al. (2016) state that culture is a powerful resource of common, purposeful and flexible guidelines. They maintain that the effect of culture on members of an organization has been so great that the behaviour, feelings, perceptions and attitudes of the members could be found by investigating its dimensions and by predicting and directing their probable reactions to desired changes. They further acknowledge that organizational culture may facilitate change and stabilize new orientations in an organization. Organizational culture is an interesting and important aspect of organizational behaviour (Amin B et al., 2011). Organizational culture is socially embedded, constructed and reproduced over time (Schein, 1993). Huczynski and Buchanan (2001) see organizational culture as a monotonous set of values, beliefs, customs, traditions and stable methods transmitted by members of an organization. This is because organizational culture defines the way employees' complete tasks and interact with each other in an organization. Organizational culture is defined as an organization's internal characteristics, and it represents how members of an organization interact with one another and how the organization associates with its stakeholders (Lam et al., 2021). Leonard (2019) relates organizational culture to student performance, and states that students who love to learn tend to look for opportunities inside and outside of school. They do not miss class and they engage with teachers to extend their knowledge and ideas. 'Job performance' is a key term used to describe the performance of a worker in their task-related activities. Caillier (2010) categorically accepts that job performance should be viewed as behaviours rather than results. Aycan et al (1999) as cited in Ghazi and Muzaffar (2018:209), argue that organizational culture at its best becomes a source of competitive advantage for organizations, since it affects the commitment of people at work and it arises from underlying assumptions, beliefs, norms, values and attitudes. In the same vein, the enhancement of performance contributes to employee commitment, while norms, values and objectives contribute to enhancing the culture of an organization (Awadh and Saad, 2013). One of the most important reasons for the interest in organizational culture is the assumption that certain organizational cultures lead to an increase in job performance (Abbas and Saad, 2018). Organizational performance comprises the actual productions as well as outputs of an organization which are measured against its expected outcomes (Ahmed and Shafig, 2014: Version 1.0).

Although there are many measures of organizational culture evidenced in the literature, the three measures used for this study were selected from Denison's (1990) model. The first measure is mission. It is defined as the degree to which an organization and its members know where they are going, how they unite to get there, and how each individual can contribute to the organization's success. Successful organizations have a clear sense of purpose and direction that defines organizational goals and strategic objectives. They express a vision of how their organization will look in the future (Hamel and Prahalad, 1994; Mintzberg, 1987, cited in Zakari, Poku and Owusu-Ansah, 2013: 98). The second measure is involvement. According to Kofi Poku and Owusu-Ansah (2013), involvement is the degree to which individuals at all levels of an organization are engaged in the pursuit of its mission and work in a collaborative manner to fulfil organizational objectives. Involvement consists of building human capability, ownership and responsibility. The third measure is adaptability. This is the ability of an organization to scan the external environment and respond to the ever-changing needs of its customers and other stakeholders. An organization has a system of norms and beliefs that support its capacity to receive, interpret and translate signals from its environment into internal behavioural changes that increase its chances of survival and growth (Denison, 1990).

Concept of job performance

Generally, 'job performance' is a key term that is used to describe how well a worker performs in their task-related duties (Murphy, 1989; Rotundo, 2000). In other words, job performance should be behaviour-oriented rather than results-oriented. Borman and Motowidlo (1993) argue that, overall, job performance is multidimensional, but it might be split into the general dimensions of task performance and contextual performance. They maintain that task performance, or in-role performance, is the proficiency with which job incumbents perform activities that are formally recognized as part of their job, or activities that contribute to the organization's technical core either directly, by implementing part of the technological process, or indirectly, by providing it with needed materials or services (73). They go on to describe contextual performance, or extra-role performance, as discretionary behaviours that apply across all jobs and contribute to the social and psychological environment of the organization (73). This implies that contextual performance is not role-prescribed. Although it has been stated that job performance is multidimensional, task performance and contextual performance were considered in this study.

Task, or work, performance is one of the most important variables in work and organizational psychology. It is becoming increasingly important to expand the scope of performance appraisal to all behaviours that have an impact on organizational outcomes, including task-specific and discretionary work behaviours. Task performance could be defined as those quantifiable employee behaviours and outcomes that contribute to organizational goals. Task performance refers to the prescribed role an employee should fulfil in order to attain organizational goals. It can also be defined as the efficacy with which workers perform activities that contribute to the development of an organization's technical core. This contribution can be direct, including the application of organizational technology, or indirect, providing the materials or services needed to perform an organization's technical processes (Borman and Motowidlo, 1993: 73).

Contextual performance, also known as citizenship performance, refers to behaviours other than core performance which facilitate social and psychological contexts that serve as catalysers for the efficient undertaking of the entrusted tasks (Ng et al., 2009). Examples of contextual activities include volunteering to perform tasks that are not formally part of one's job, helping and cooperating with others in the organization, consciousness, courtesy and civic virtue (Ng et al., 2009; Yang and Hwang, 2014). These are socially and psychologically motivated behaviours that facilitate task activities.

Relationship between knowledge management and organizational culture

It has been revealed in the related literature that organizational culture plays an important role in knowledge management (Lam et al., 2021). Previous studies have shown that organizational culture is related to knowledge management, or is the foundation of knowledge initiatives because it encourages employees to share new information (Hofstede, 2015; Zehir et al., 2011). Further, Kayworth and Leidner (2004) maintain that organizational culture is a critical factor that facilitates effective knowledge management processes, such as knowledge creation, knowledge transfer and knowledge application. A study by Lee and Choi (2003) found that a culture in which mutual trust, collaboration and learning were promoted was significantly related to effective knowledge management. In another study, by Zheng et al. (2010), organizational culture was found to have the strongest impact on knowledge management, among other factors. Aldulaimi (2015) found a positive correlation between organizational culture and knowledge management. In a study carried out by Moshen et al. (2011), the results indicate that there was a meaningful relationship (about 99%) between different kinds of organizational culture and six dimensions of knowledge management. The study by De Long and Fahey (2000) shows that organizational culture could influence knowledge management in four ways:

- By identifying knowledge activities and its importance for organizational management;
- By its role in Creating relationships between people and knowledge of an organization;
- By highlighting a cultural pattern, which identifies how knowledge has to be used in specific situations;

- By process-making, legitimating and spreading knowledge in an organization (see also Shafee et al., 2010).

In the same study, De Long and Fahey (2000) found that 80% of knowledge management activities were related to people and organizational culture, and 20% were related to technologies of knowledge management. Balthazar and Cook (2004) are of the view that knowing an organizational culture is necessary for those who are proposing strategies of knowledge management because it influences both the process of knowledge management and the complete cooperation and obligation of organizations' members towards knowledge management. In another study, Chang and Lee (2007) attempted to investigate the influence of organizational culture on knowledge management. The findings show a significant correlation between organizational culture and knowledge management ($r =$ .829). This shows that organizational culture and that the more (not greater) the recognition of organizational culture (not organizations of organizational culture), the greater the knowledge management practices. This finding is supported by Zheng et al. (2010), who determined that organizational culture yielded a significant positive impact on knowledge management. Similarly, Kaweevisultrakul and Chan (2007) seem to support the above finding when they maintain that organizational culture is one of the drivers of knowledge management success. Park et al.'s (2004) research found that organizational culture contributed significantly to the process of knowledge management implementation in organizations. A similar study by Sohrabi et al. (2017) reveals that knowledge management was found to have a positive relationship with all the indicators of organizational culture: consistency ($r = 0.729$), mission ($r = 0.826$) and involvement ($r = 0.723$). Another study, by Ahmed and Sheikh (2020), discloses a significant relationship between organizational culture and knowledge sharing.

Based on these findings, the first hypothesis of the present study is as follows:

H1: Knowledge management has a significant association with organizational culture in university libraries in Nigeria.

Relationship between knowledge management and job performance

Knowledge management plays important roles in increasing efficiency and organizational performance or public service delivery (Skyrme, 2003). McAdam and Reid (2000) also remark that knowledge management can make an important contribution to society. Knowledge management has been identified as a factor or organizational element that is popular in improving the job performance of employees (Rahmayanto et al., 2019). Previous studies on knowledge management and job performance in the public sector indicate that employees with knowledge management were more positive towards their job performance or, as predicted in the study by Mustapa and Mahmood (2016), that knowledge management significantly influenced job performance. A positive link has also been found between knowledge sharing and job performance (Kang et al., 2008; Tseng and Huang, 2011). Khanal and Poudel (2017) report that a knowledge management process component showed a significant correlation with the job performance of employees. The research by Rahman and Hasan (2017) confirms a significant positive effect of knowledge management and human resources management (HRM) practice on organizational performance. Furthermore, many concepts or factors have been found to be supportive of the association between knowledge sharing and job performance; however, empirical research is limited (Jones, 2001).

Based on these studies, the second and third hypotheses of the present study are as follows:

H2: Knowledge management has a significant association with job performance.

H3: Knowledge management practices are significant predictors of job performance.

Relationship between organizational culture and job performance

The relevance of organizational culture within the context of job performance cannot be overemphasized. Organizational culture can be a source of competitive advantage for organizations because it affects the commitment of people in the workplace and it arises from underlying assumptions, beliefs, norms, values and attitudes (Aycan et al., 1999). Organizational culture values can bring about consistent performance (Brown, 1998). The study of organizational culture has significance when it establishes a correlation with job performance or with the actions of employees (Alvesson, 1990; Lund, 2003). Previous studies have reported a positive relationship between organizational culture and job performance (Ogbonna and Harris, 2000; Shahzad et al., 2013). Organizational culture has been reported as the key influencer of job performance (Shahzad et al., 2013). Al-Matari and Omira (2017) examined the relationship between organizational culture and job performance in a public sector environment and found a positive relationship between them. Moreover, Kang and Stewart (2007) report a link between a conducive work culture and higher individual performance. The research by Ilyas (2013) examined the relationship between job fit, job satisfaction, job commitment and intention to quit amongst the employees of various organizations in Pakistan and found that organizational commitment moderated the relationship between job fit and intention to quit. In contrast, job commitment did not moderate the relationship between job fit and job satisfaction. The results of this research will help managers to create a work environment where employees match their abilities with their job, and this helps to reduce the intention of the employees to quit their job. In a study carried out by Ekpenyong and Ekpenyong (2016), it is observed that the majority of the respondents agreed that organizational culture did not have an impact on job performance and the satisfaction levels of employees. It was also found that the type of organizational culture practised in an organization could also determine the level of employee performance and job satisfaction. Their findings imply that an organization that practises either a clan or support culture tends to experience high performance and satisfaction levels; this type of culture encourages employees to be more innovative, and it also supports socialization and teamwork. In a recent study by Meng and Berger (2019), the results confirm that the existence of a supportive organizational culture was antecedent to enhanced job performance. In this regard, a supportive culture that understands the value of public relations, shares decision-making power, practises two-way communication and embraces diversity is crucial. A survey carried out by Rose et al. (2008) reveals that American and European multinational companies reported higher mean scores in organizational performance and were performing well in all four dimensions 1: Individualism and collectivism, 2: Power distance, 3: Uncertainty avoidance, and 4: Masculinity and femininity compared to Japanese and Malaysian multinational companies. These authors also found that those organizations that paid attention to culture were more successful.

Despite the fact that there are divergent views in past research with regard to organizational culture, the majority of researchers have observed a positive relationship between organizational culture and job performance. These studies surely validate the present research in a library work environment, and have resulted in the formulation of the following two hypotheses:

> *H4:* Organizational culture has a significant association with job performance.

> *H5:* Organizational culture factors are significant predictors of job performance.

Knowledge management, organizational culture and job performance

The mediating effects of certain organizational elements have been studied. These organizational elements, as gleaned from the literature, include leadership styles, organizational commitment, knowledge management and organizational culture. In a recent study, Ugwu (2018) considers the mediating effects of knowledge management on the relationship between transformational leadership and the job performance of librarians. It was found that knowledge management influenced the relationship between some transformational behaviours and job performance. Further, Ekpenyong and Ekpenyong's (2016) research found that organizational commitment moderated the relationship between job fit and intention to quit. Organizational culture has been found to influence the relationship between knowledge management and innovation (Abdi et al., 2018). Although knowledge management, organizational culture and job performance have been studied in other contexts, studies on their combined effects appear to be scant or non-existent in the library environment. Based on this, the following hypothesis is proposed:

> *H6:* Organizational culture mediates the relationship between knowledge management and job performance.

Conceptual model

The conceptual model for this study is depicted in Figure 1. The proposed framework comprises three constructs – namely, knowledge management, organizational culture and job performance.

- Management practices refer to formalized and active practices to create, share and use knowledge (Islam et al., 2017). In this study and based on this operational definition, knowledge management was measured by knowledge capture, knowledge sharing and knowledge application.
- Organizational culture refers to the pattern of values, beliefs and attributes that influence behaviour in an organization. In this study, organizational culture was measured by involvement, adaptability and mission.
- Job performance refers to the productivity of an individual's work-related behaviour. In this

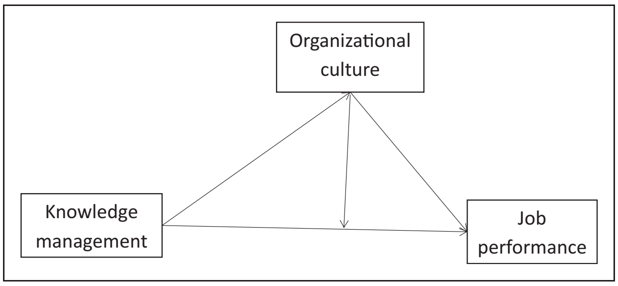

Figure 1. Conceptual model.

study, job performance was measured by the task-oriented as well as the extra roles of librarians.

This conceptual model depicts the possible relationships between the research constructs. These relationships were proposed as a set of research hypotheses, addressing the research questions that guided the study.

Research methodology

Research approach

A quantitative approach was used in this study. According to Huysamen (1994: 2), a “description of quantitative research consists of hypothesis formulation, data collection, analysis and interpretation”. Quantitative research seeks to establish facts, make predictions and test hypotheses that have already been stated. Within a quantitative approach, correlational research was chosen as the appropriate design for this study. This choice was based on the fact that the study was intended to determine the relationship between the research variables and the predictive strengths of the research constructs.

Measuring of constructs

To measure the constructs, the study employed a questionnaire survey for data collection. The three constructs – knowledge management, organizational culture and job performance – were measured as follows: first, for the knowledge management construct, the three dimensions proposed by Islam et al. (2017) – knowledge capture, knowledge sharing and knowledge application – were adopted and had 14 statements as their measures; second, for the organizational culture construct, three dimensions – involvement, adaptability and mission – were adopted from Nguyen and Mohamed’s (2011) study and had 12 statements as their measures; third, for the job performance construct, the authors used six-item measures, all from previous research. The questionnaire items were rated on a five-point Likert scale (1 = *very low degree* to 5 = *very high degree*). The questionnaire was validated by three experts in the field of library and information science. These experts were asked to check the content of the questionnaire in terms of its appropriateness as well as its ambiguity. Confirmatory factor analysis of the research constructs was carried out, and the results are presented in Table 3 below.

Sample

A survey questionnaire was used to gather data for the study. Before implementing the survey, a draft questionnaire was developed by the researchers and reviewed by three lecturers in the field of library and information science at the University of Nigeria, Nsukka, to ensure that the content and wording were free from problems. After some changes were made as suggested, the revised questionnaire was piloted on 30 academic librarians at the University of Nigeria, Nsukka. These librarians were given the questionnaire and asked to examine it for meaningfulness, relevance and clarity. Academic librarians in government-funded university libraries in Nigeria were the target population for this study. The academic librarians were drawn from a list maintained by the Librarians’ Registration Council of Nigeria, and only those librarians with active email addresses were contacted to participate in this study. Copies of the questionnaire were distributed via the email addresses of the librarians who were contacted to participate in the study. In this way, a total of 300 academic librarians were contacted and asked for their consent to participate in the study. A total of 200 of these librarians were from federal universities, comprising 120 librarians from conventional universities, 55 from federal universities of technology and 25 from federal universities of agriculture, whereas 100 of the librarians were from state universities, comprising 65 librarians from conventional state universities and 35 from state universities of science and technology. The purpose of the study was explained to them and they had the right to opt out by not filling in the questionnaire. Completion of the questionnaire implied consent. Thus, the participants could choose not to answer questions they were not comfortable with. To protect the identity of the participants, no names, email addresses or library names were collected. Out of the 300 copies of the questionnaire distributed, 230 were returned and found to be eligible. The return rate of the questionnaire was thus 76.7%.

Data analysis

The statistical methods employed in the analysis of the data included descriptive statistics, correlational

Table 1. Demographic data of the respondents.

Variable	Category	*f*	%
Gender	Male	106	46.1
	Female	124	53.9
	Total	230	100
Institution type	Private	60	26.1
	State	70	30.4
	Federal	100	43.5
	Total	230	100
Position	Head of division	79	34.3
	Head of section	63	27.4
	Other librarian	88	38.3
	Total	230	100

analysis, multiple regression and step-wise regression. To determine the status or the situation of the research variables, descriptive statistics such as the mean, the standard deviation and percentages were utilized. To determine the relationship between the research constructs, Pearson's correlation was used. Multiple regression analysis was performed to determine whether knowledge management and organizational culture could predict job performance. Step-wise regression was performed to determine whether organizational culture mediated the relationship between knowledge management and job performance. These statistical methods were implemented and calculated using SPSS.

Findings

Table 1 shows the demographic data of the respondents. The respondents came from various university environments in Nigeria, such as federal (43.5%), state (30.4%) and private (26.1%) universities. On the whole, more female librarians (53.9%) than male librarians (46.1%) participated in the study. In terms of the designations or job positions of the respondents, 34.3% were heads of section, 27.4% were heads of division and 38.3% were other librarians holding no headship positions.

The results in Table 2 are quite revealing. The highest ranking of the knowledge management practices carried out in the libraries was knowledge sharing ($M = 3.99$, $SD = 0.74$), and this was followed by knowledge capture ($M = 3.95$, $SD = 0.66$). The third ranked of the knowledge management practices was knowledge application ($M = 3.93$, $SD = 0.61$). The items in Table 2 indicate that the most specific knowledge management activities carried out in the libraries included organizing regular meetings for discussion, encouraging learning through group interactions, and using the knowledge of staff to enhance library services. The results also show that the highest-ranking cultural activity in the libraries was adaptability ($M = 3.83$, $SD = 0.71$), followed by involvement ($M = 3.80$, $SD = 0.74$) and then mission ($M = 3.72$, $SD = 0.72$). The items located in these organizational culture factors indicate that the most specific cultural activities in the libraries were spreading information widely so that everyone could obtain it, having a long-term purpose and direction, and adopting new and improved ways to work. The mean perception of the librarians with respect to their job performance was 3.69. Further, these librarians were of the opinion that knowledge management broadened knowledge of their work, increased their willingness to work with others, and helped them to accomplish their work mission.

The measures of the constructs in this study were tested for construct validity. This was achieved using convergent and discriminant reliability. To test for the convergent reliability of the constructs, the researchers examined the Cronbach's alpha, average variance extracted and composite reliability. Following recommendations from previous studies, the acceptable threshold values for Cronbach's alpha, average variance extracted and composite reliability were 0.60. 0.50 and 0.70, respectively (Hair et al., 2015; Yung et al., 2019). As can be seen from Table 3, all of the values of Cronbach's alpha were higher than 0.80, which exceeded the acceptable 0.60 threshold. The average variance extracted values were all above 0.50, indicating the convergent validity of the tested constructs. The factors' composite reliability was also higher than 0.70, indicating high internal consistency (Hair et al., 2015). In addition, all of the variables had loadings greater than 0.60, which satisfies the theoretical requirement of Henseler et al. (2012) and confirms the scales' content validity.

The discriminant reliability was tested using the parameter from the study by Fornell and Larcker (1981): the square root of a construct's average variance extracted must be greater than the value of its association with any other construct. The cross-loadings of the indicators were analysed as suggested by Hair et al. (2015) and Fornell and Larcker (1981), and are presented in Table 4. As can be seen from Table 4, all of the indicators satisfied the criteria for testing discriminant reliability.

After testing for convergent and discriminant validity, the research model's predictive strength was determined by the R^2 values for the endogenous constructs (Henseler et al., 2012; Yusr, 2016). The R-Square values for the endogenous constructs are accessed as follows: 0.26 (substantial), 0.13 (moderate) and 0.02 (weak) (Cohen, 1988). It can be seen from Table 5 that the R^2 values of the endogenous constructs lie within this substantial range. This means

Table 2. Descriptive analysis of the research variables.

Variable	Item measures	*M*	*SD*	Rank
Knowledge capture	We learn about library users to understand their needs	4.01	0.72	3
	Our library encourages learning through group interactions	4.36	0.67	1
	We study the university curricula to understand users' needs	4.05	0.74	2
	We use our experience to create new services	3.78	0.78	4
	We use our library know-how in a creative manner	3.67	0.80	5
	Total	**3.95**	**0.74**	
Knowledge sharing	We share knowledge through informal dialogues, face-to-face meetings and group discussions	4.06	0.65	2
	Knowledge relevant to library users is shared with them	3.65	0.70	5
	We share knowledge on the needs of library users	4.00	0.65	3
	Our library organizes regular meetings for discussion of professional issues	4.56	0.60	1
	New staff are assigned mentors to guide them	3.67	0.72	4
	Total	**3.99**	**0.66**	
Knowledge application	We use the knowledge of library staff to enhance services	4.07	0.68	1
	Knowledge gathered from different sources is analysed and synthesized	4.00	0.70	3
	New knowledge is applied to develop new services	4.02	0.66	2
	New knowledge is applied to solve library problems	3.62	0.78	4
	Total	**3.93**	**0.71**	
Mission	There is a clear mission that gives meaning and direction to our work in the library	3.56	0.73	4
	The vision of my library creates excitement and motivation	3.62	0.70	2
	We have a shared vision of what our library will look like in the future	3.59	0.80	3
	There is a long-term purpose and direction	4.12	0.64	1
	Total	**3.72**	**0.72**	
Involvement	Information is spread widely so that everyone can obtain it	4.22	0.68	1
	Working in my library is like being part of a team	3.78	0.72	2
	Everybody believes that they can have a positive impact	3.64	0.75	3
	Our library invests in the skills of staff	3.55	0.80	4
	Total	**3.80**	**0.74**	
Adaptability	The input of library users directly influences our decisions	3.66	0.77	3
	We are very responsive to the needs of library users	4.01	0.66	2
	We continually adopt new and improved ways to work	4.05	0.63	1
	Failure is seen as an opportunity for us to learn and improve	3.61	0.78	4
	Total	**3.83**	**0.71**	
Job performance	Knowledge management increases my work efficiency	3.70	0.67	2
	Knowledge management helps me to solve problems at work	3.56	0.79	6
	Knowledge management helps me to accomplish my work mission	3.62	0.72	4
	Knowledge management broadens my knowledge	4.00	0.63	1
	Knowledge management increases my willingness to work with others	3.66	0.76	3
	Knowledge management increases my problem-solving abilities	3.59	0.78	5
	Total	**3.69**	**0.74**	

Table 3. Confirmatory factor analysis.

Latent variable	Items	Loadings	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted
	Thresholds		≥ 0.60	≥ 0.70	≥ 0.70	≥ 0.50
Knowledge management	Knowledge capture	0.835	0.853	0.854	0.899	0.690
	Knowledge sharing	0.843				
	Knowledge application	0.821				
Organizational culture	Mission	0.820	0.824	0.867	0.895	0.594
	Involvement	0.830				
	Adaptability	0.720				
Job performance	Task performance (TP)	0.855	0.813	0.864	0.896	0.697
	Contextual performance (CP)	0.843				

Table 4. The Fornell–Larcker criterion.

Constructs	Job performance	Knowledge management	Organizational culture
Job performance	0.837		
Knowledge management	0.698	0.812	
Organizational culture	0.685	0.730	0.721

Table 5. R^2 values of endogenous constructs.

Construct	R^2	Result
Job performance	0.546	Substantial
Organizational culture	0.479	Substantial
Knowledge management	0.464	Substantial

that organizational culture and knowledge management factors explained 54.6% of the variance in job performance. It is also worthy of note that 47.9% of the organizational culture variance could be explained by knowledge management factors, whereas knowledge management alone accounted for 46.4% of the variance in job performance.

Correlational analysis

A correlation matrix, showing the values of the correlations between the variables (see Table 6), was computed for the purpose of answering the research questions that guided the study.

Table 6 shows the relationship between knowledge management factors, organizational culture factors and job performance. The results show that each of the knowledge management factors – knowledge capture ($r = 0.69$), knowledge sharing ($r = 0.70$) and knowledge application ($r = 0.65$) – showed a positive and strong relationship with job performance. The results also show that the organizational culture factors – mission ($r = 0.67$), involvement ($r = 0.71$) and adaptability ($r = 0.69$) – correlated positively with librarians' job performance. The findings further reveal that the factors of knowledge management practices had positive associations with organizational culture factors, and the strongest correlation was found between knowledge capture and involvement ($r = 0.67$). Generally, knowledge sharing had the strongest relationship with job performance among the knowledge management factors, whereas involvement had the strongest association with job performance among the organization culture factors.

Hypothesis testing

The multiple regression technique was used to test the hypotheses developed for this study. The level of significance chosen was .05 and the probability value (p-value) was considered to be the decision rule for rejecting the null hypothesis (Creswell, 2009). This means that if the p-value is less than or equal to .05, the null hypothesis will be rejected and the alternative hypothesis will be accepted or supported. Otherwise, the null hypothesis cannot be rejected and the alternative hypothesis will not be supported. Further, the researchers checked the data collected on the independent variables for normality and multicollinearity. It is important to note that multicollinearity occurs when the independent variables are found to be highly correlated. For this purpose, skewness for normality and the variance inflation factor for multicollinearity were investigated. The results of this investigation are shown in Table 7.

To check for normality, Pallant (2005) maintains that most of the values should be within the adequate ranges of normality (i.e. -1.0 to $+1.0$). As revealed in Table 7, the skewness values are within the normal values of -1.0 to $+1.0$, suggesting that the independent variables were normal. The variance inflation factor values are less than the critical value of 10, which is common in most studies (Masa'deh, 2013), and this finding suggests that there was no multicollinearity problem among the independent variables.

Table 8 shows the results of the data analysis when job performance was regressed on knowledge management and organizational culture. The results show that both knowledge management (ß $= 0.295$, $t = 3.836$, $p < .005$) and organizational culture (ß $= 0.404$, $t = 2.495$, $p < .005$) had significant positive associations with job performance. Further, the contributions of knowledge management and organizational culture to the variations in the job performance of librarians were found to be 46.4% and 47.9%, respectively. This indicates that even though organizational culture and knowledge management have been found to contribute to changes in the job performance of librarians, the remaining 52.1% of the variations in the librarians' job performance could be explained by other factors.

Table 9 shows the results of the regression of job performance on the knowledge management factors. The results reveal that the knowledge management factors – knowledge capture (ß $= 0.260$, $t = 3.684$,

Table 6. Correlational analysis of the research variables.

Variables	Knowledge capture	Knowledge sharing	Knowledge application	Mission	Involvement	Adaptability	Job performance
Knowledge capture	1.00	0.68	0.56	0.63	0.67	0.61	0.69
Knowledge sharing	0.68	1.00	0.47	0.58	0.55	0.59	0.70
Knowledge application	0.56	0.47	1.00	0.61	0.58	0.49	0.65
Mission	0.63	0.58	0.61	1.00	0.51	0.50	0.67
Involvement	0.67	0.55	0.58	0.51	1.00	0.60	0.71
Adaptability	0.61	0.59	0.49	0.50	0.60	1.00	0.69
Job performance	0.69	0.70	0.65	0.67	0.71	0.69	1.00

Table 7. Skewness and variance inflation factors for the independent variables.

Dimension	Variable	Skewness	Variance inflation factor
Knowledge management	Knowledge capture	0.78	2.52
	Knowledge sharing	0.62	2.34
	Knowledge application	0.58	2.41
Organizational culture	Mission	0.61	2.52
	Involvement	0.70	2.37
	Adaptability	0.68	2.26

Table 8. Regression analysis of job performance on knowledge management and organizational culture.

Independent variables	*M*	*SD*	*R*	R^2	*F*	*P*	B	ß	t	*P*
Knowledge management	3.63	0.43	0.681	0.464	30.196	0.000	0.320	0.295	3.836	0.000
Organizational culture	3.43	0.51	0.692	0.479	14.712	0.000	0.346	0.404	2.495	0.000

Table 9. Regression analysis of job performance on knowledge management factors.

Knowledge management factors	Constant	B	ß	*SE*	*T*	*R*	R^2	Adjusted R^2	*F*	*P*
Knowledge capture	1.716	0.179	0.260	0.084	3.684	0.691	0.477	0.476	57.655	0.000
Knowledge sharing	2.502	0.477	0.394	0.087	2.060	0.702	0.493	0.489	22.933	0.000
Knowledge application	1.442	0.132	0.103	0.032	3.180	0.649	0.421	0.414	56.141	0.000

Table 10. Regression analysis of job performance on organizational culture factors.

Organizational culture factors	Constant	B	ß	*SE*	t	*R*	R^2	Adjusted R^2	*F*	*P*
Involvement	1.358	0.491	0.519	0.061	3.064	0.713	0.508	0.499	39.513	0.000
Adaptability	2.283	0.261	0.304	0.065	5.992	0.672	0.452	0.448	15.300	0.001
Mission	1.236	0.303	0.316	0.077	4.844	0.691	0.477	0.462	33.176	0.000

$p < .05$), knowledge sharing (ß $= 0.394$, $t = 2.060$, $p < .05$) and knowledge application (ß $= 0.103$, $t = 3.180$, $p < .05$) – correlated significantly with job performance. Further, these knowledge management factors accounted for 47.7%, 49.3% and 42.1%, respectively, of the variations in the job performance of librarians. These results indicate that knowledge sharing was the strongest or highest predictor of the job performance of librarians.

Job performance was regressed on organizational culture factors (see Table 10). Table 10 shows how well the organizational culture factors predicted job performance. The results of the regression analysis show that involvement (ß $= 0.519$, $t = 3.064$, $p < .05$), adaptability (ß $= 0.304$, $t = 5.992$, $p < .05$) and mission (ß $= 0.316$, $t = 4.844$, $p < .05$) correlated significantly with job performance. These cultural factors accounted for 50.8%, 45.2% and 47.7%,

Table 11. Stepwise multiple regression of knowledge management on job performance with the mediating effect of organizational culture.

	Step 1	Step 2
Independent variable	Knowledge management Knowledge management × involvement	Knowledge management × adaptability Knowledge management × mission
	Beta *t* Beta *t*	Beta *t* Beta *t*
Knowledge management	0.295 3.836* 0.412 5.406*	0.396 0.414* 0.421 5.245*
Interaction effect		
Knowledge management × involvement	0.047 5.33*	
Knowledge management × adaptability		−0.54 −0.623
Knowledge management × mission		0.027 3.29*
Equation		
ΔR^2	0.421	0.315 0.428
R^2	0.464 0.508	0.402 0.515
ΔF	0.286	0.534 0.109
F	30.196* 15.166*	10.345* 15.067*

*$p = .05$; dependent variable = job performance.

respectively, of the variation of the job performance of librarians. These findings indicate that involvement was the highest predictor of job performance.

Table 11 shows the mediating effect of organizational culture on the association between knowledge management and job performance. The results indicate that knowledge management alone accounted for 46.4% of the variation in job performance. When the 'involvement factor' was introduced, the percentage of variability of job performance increased to 50.8%. However, when the 'adaptability factor' was introduced, the percentage of variability of job performance decreased to 40.2%. When the 'mission factor' was introduced, the percentage of variability of job performance increased again to 51.5%. These findings reveal that while the involvement and mission factors mediated the effect of organizational culture on knowledge management and job performance, the adaptability factor did not. Therefore, organizational culture partially influenced the association between knowledge management and the job performance of librarians.

Discussion of findings

This study aimed to investigate the mediating effect of organizational culture on the association between knowledge management and job performance. To carry out this investigation, four research questions and six hypotheses were formulated. The hypotheses were tested at the .05 level of significance.

The first research question sought to determine the relationship between knowledge management practices and the job performance of librarians. The study revealed that knowledge management practices in university libraries consisted of knowledge capture, knowledge sharing and knowledge application. The most prevalent knowledge management practices was knowledge sharing. However, the specific knowledge management practices in the university libraries comprised organizing regular meetings for discussion of professional issues, encouraging learning through group interactions and using the knowledge of staff to enhance library services. These findings support the assertion by Moballeghi and Galyani Moghaddam (2011) that knowledge management consists of acquisition, sharing and the use of knowledge within organizations. It was also found that knowledge management correlated positively with performance, accounting for 46.4% of the variation in the job performance of librarians. The knowledge management practices were found to be significant predictors of librarians' job performance. These practices included knowledge sharing, knowledge acquisition and knowledge application, and they accounted for 47.2%, 49.3% and 42.1%, respectively, of the variability in the job performance of librarians. These results reveal that knowledge sharing was the highest predictor of job performance. This is not surprising because it has been reported elsewhere that a positive link exists between knowledge sharing and job performance (Kang et al., 2008; Tseng and Huang, 2011), while Khanal and Poudel (2017) report that a knowledge management process component showed a significant correlation with the job performance of employees.

The second research question was framed to determine the relationship between organizational culture and job performance. The organizational culture dimensions as perceived by the participants consisted of mission, involvement and adaptability. The most prominent of these dimensions, based on the perceptions of the librarians, was involvement. The study also revealed the specific organizational culture activities in the libraries. These included spreading information widely so that everyone could obtain it, having a long-term purpose and direction, and adapting new and improved ways of working. The organizational culture dimensions of involvement, mission and adaptability were found to be significant predictors of job performance and accounted for 50.8%, 47.7% and 45.2%, respectively, of the variation in the librarians' job performance. These findings indicate that involvement was the highest predictor of job performance. On the whole, the study revealed a positive and significant relationship between organizational culture and job performance. This finding supports previous studies that have reported a positive relationship between organizational culture and job performance (Ogbonna and Harris, 2000; Shahzad et al., 2013).

The study revealed a positive and strong association between the knowledge management practices and organizational culture dimensions in answer to the third research question. This finding agrees with the reports in the extant literature that a meaningful relationship exists between different kinds of organizational culture and knowledge management practices (Moshen et al., 2011), and that organizational culture could influence knowledge management in several ways (De Long and Fahey, 2000). The study by Li et al. (2013) shows that organizational culture as a whole has a positive influence on knowledge management. It has also been stressed that organizations wishing to manage knowledge successfully should create the same proportion of organizational culture and act on it (Rahimnia and Alizade, 2009).

The hypotheses on the significant association between knowledge management and job performance (Hypothesis 1) and between organizational culture and job performance (Hypothesis 3) were confirmed and accepted. These findings agree with the study by Mustapa and Mahmood (2016), which predicted that knowledge management would significantly influence job performance. The present study also supports Rose et al.'s (2009) findings that organizations which paid attention to organizational culture were likely to be more successful and perform better than those without organizational culture. However, the present study disagrees with Ekpenyong and Ekpenyong's (2016) findings that organizational culture did not have an impact on the job performance of employees. The reasons for this are threefold: (1) Ekpenyong and Ekpenyong's study had two dependent variables – namely, job performance and job satisfaction – and one independent variable – organizational culture – whereas the present study had one dependent variable and two independent variables; (2) the contexts of the two studies were different; and (3) it was observed by Ekpenyong and Ekpenyong that the type of organizational culture practised in an organization could also determine the level of employee performance. Taking the latter observation further, different kinds of organizational culture selected in a study are most likely to produce different impacts on job performance. This may also happen when different models of organizational culture are adopted in a study. For instance, the present study adopted the Denison (1990) model with defined dimensions of organizational culture, and this is different from the dimensions of culture adopted in Ekpenyong and Ekpenyong's research.

Hypothesis 2 and Hypothesis 4 on the predictors of the job performance of librarians were equally confirmed. Although all the knowledge management factors were significant predictors of job performance, knowledge sharing was the strongest predictor. Of all the organizational culture dimensions that significantly predicted job performance, involvement was the strongest predictor. However, the organizational culture dimension of adaptability was not a significant predictor of job performance. Li et al.'s (2013) study reports that involvement was the strongest factor, even when the setting or context and knowledge management practices were different; the context here was the public sector, and the knowledge management practices were based on the Socialization, externalization, combination, and internalization (Nonaka (1991) model.

Hypothesis 5 was also confirmed in this study. This confirmation shows that the relationship between knowledge management and job performance as perceived by the librarians was partially mediated by organizational culture. This finding supports the extant literature which indicates that job performance was related to a number of factors, including knowledge management, organizational culture and technology (Lee and Choi, 2003; Nguyen and Mohammed, 2011; Uddin et al., 2014). The present study further revealed that, with the exception of the adaptability factor, other organizational culture mediates the relationship between knowledge management and job performance of librarians.

Implications

The results of this study have implications for the theory and practice of knowledge management, organizational culture and job performance. The study revealed that knowledge management had a positive relationship with librarians' job performance. This means that the job performance of librarians can be enhanced by encouraging them to engage in knowledge management practices. Librarians can begin by simply engaging in knowledge sharing. The reason is that, in this study, knowledge sharing was found to be the greatest predictor of the job performance of librarians.

The relationship between knowledge management practices and the job performance of librarians was found to be positively influenced by organizational culture. Since knowledge management can lead to better job performance, it is also important that a supportive cultural environment be created in university libraries in Nigeria. This study revealed that such support should be in the form of ensuring that librarians are comfortable with the library's mission and that they are involved in the day-to-day running of the library. The involvement of librarians in library affairs is paramount as it is a cultural factor that interacts significantly with knowledge management to influence their job performance. Unfortunately, adaptability as an organization culture factor did not have a significant effect on the association between knowledge management and job performance. University libraries in Nigeria are therefore encouraged to continue to adopt new and improved ways of working, and to be more responsive to the needs of library users.

Conclusion

This study aimed to fill the obvious gap reported in the literature that there are limited studies that have tried to empirically determine the concepts that influence the association between knowledge management and job performance. One of these concepts, as investigated in this study, is organizational culture. The study revealed that knowledge management and organizational culture correlated with each other, and this infers that each had a positive and strong association with job performance. Among the knowledge management factors, knowledge sharing was found to be the highest predictor of librarians' job performance. This means that university libraries that are wishing to use knowledge sharing to improve job performance should encourage staff to engage or participate actively in informal dialogue, face-to-face meetings and group discussions, and attend regular library meetings where professional issues are discussed. Other important activities include sharing knowledge gained on the needs of library users and assigning mentors to new staff. This study revealed, also from organizational culture perspectives, that involvement was the highest predictor of job performance. This implies that to increase the involvement of librarians for better job performance, certain cultural practices should be put in place, such as spreading information widely so that everyone can obtain it, giving everybody a sense of belonging for a positive impact, building team spirit where everyone is seen to be part of a team, and investing in the skills development and training of librarians.

The results of this study also revealed that organizational culture had a mediating effect on the relationship between knowledge management and job performance. This finding signifies the importance of organizational culture in the university library system. It also implies that organizational culture and knowledge management can enhance librarians' job performance. In other words, the interplay between a supportive cultural environment and knowledge management systems can enhance job performance. In university libraries in Nigeria, there is a significant need for a culture that encourages the involvement of librarians in the affairs of the library and ensures that every librarian is conversant with the library's mission.

This study provides an understanding of how librarians perceived knowledge management and job performance, and the influence of organizational culture on the association between knowledge management and job performance. It is important for librarians to know about the influence of organizational culture on knowledge management and job performance because it is a way of determining which organizational culture to adopt in implementing knowledge management that aims to enhance librarians' job performance.

The findings of this study might have been affected by certain factors. Knowledge management is an emerging concept and its meaning might not have been understood by some of the librarians. It is also possible that those who felt that they were not performing any knowledge management roles in their university libraries might have avoided filling in the questionnaire. Second, organizational culture may not be the only factor that mediates or influences the role of knowledge management in job performance. Other factors, such as leadership, organizational structure and technology, may have significant impacts and should be considered in future research. Finally, a questionnaire was the main instrument for data collection, and this might have created response bias. This could be remedied by including other data collection methods for more accurate data in future research.

In conclusion, this study does not only show that librarians with more knowledge management skills were more positive towards their job performance, but also provides support for the fact that organizational culture was the mediating factor. Therefore, further research in this area should focus on each of the organizational culture dimensions for an in-depth study and analysis of the connection between knowledge management and the job performance of librarians.

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Academic libraries and the need for continuing professional development in Botswana

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Abstract
An academic librarian is expected to be skilled in the tasks they undertake and make quality services promptly available to users. This study aimed to determine academic librarians' understanding of the changes in their profession and the need for continuing professional development; examine librarians' perception of the quality of library and information science education in Botswana; and find out the extent to which academic librarians perform different library and professional functions. The research paradigm adopted was a positivist approach. Using the census method, quantitative data was collected from practising librarians and qualitative data was obtained from five library heads. The study established that there had been significant changes in the librarians' jobs over the years, as they were currently required to work harder, learn more skills and perform new tasks. With no suitable continuing professional development strategy in place, there was a lack of adequate knowledge to perform information technology and other salient tasks. Appropriate recommendations are made.

Keywords
Academic libraries, types of libraries and information providers, continuing professional development, library and professional tasks, information and communications technologies, Botswana

Introduction

Teaching, learning and research are considered to be the three pillars on which higher education rests. Academic libraries play a critical role in underpinning the success of these three crucial areas through the adequate and well-timed provision of the information resources that are essential for high-quality scholarship. In pursuing this role, there is the issue of ever emerging information and communications technologies (ICTs), which libraries can adapt or adopt to provide effective services for their customers. Perceptibly, the world is witnessing unpredictable and changing times, heralding a new normal the likes of which have not been experienced before. The volatility of the times presupposes that library and information practitioners cannot rest on their laurels if they want to be relevant in their service to customers. Over the years, library practice in academic institutions has gone through a number of phases. Traditionally, the norm was that librarians would wait to be consulted in the library for their services. The tide would later change, and academic librarians had to go to their clientele in offices and classrooms to teach information literacy skills and market their services to them. Consequently, library users would submit themselves to training and orientation on the operationalization of the library systems. Library service was much easier as the basic education and training that librarians received in schools was probably more than enough to offer adequate services to users, who, as Cummings (2007) observes, would come to the library as their first stop for papers and projects.

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Today, the advent of a new cohort of students, often referred to as 'millennials' or 'the Google generation', seems to present more challenges for librarians. This is the group that Prensky (2001) defines as 'digital natives' – a well-recognized younger generation who have grown up with new ICTs as an integral component of their everyday lives, and who have wholly new ways of thinking about and interacting with technology. The rapidity of development among digital natives has given rise to a new phase and modern generation, which Twenge (2017) describes as the 'iGen' – a cohort she categorizes as being born between 1995 and 2012. The iGen is said to be a generation that has been shaped by the smartphone and the concomitant rise of social media (Twenge, 2017); they spend their entire adolescence with smartphones, and, in this environment, social media and texting frequently replace traditional activities, leading users to change their attitudes and behaviours. For this group, there is little inclination to go to a library or seek librarians for help. Cummings (2007) believes that this group has alternative resources at their fingertips. Libraries are therefore compelled to prove, more than ever, that this generation's research needs can be better met through the library, whether online or in person.

Although trained to carry out their responsibilities as professional librarians, the reality is that the training received barely meets all the challenges that confront librarians at work. In their study, which evaluates the impact of academic liaison librarians on their user community, Cooke et al. (2011) acknowledge that the knowledge, skills and services that appear to be most highly valued by users may not reflect those on which the greatest emphasis is placed by those who are managing library services – or who are educating future library and information science (LIS) professionals. Oladokun et al. (2021) assert that the new paradigm in the information environment seems to work to keep academic librarians on their toes, even as some may find it hard to cope with the ever-changing developments. They underscore a disconcerting disconnect between the traditional education and training received by several practising librarians in developing countries and the modern-day digital and/or virtual environment.

As if the challenge of new students not wanting to show up or seek assistance in a library were not enough, the advent of new systems of life and activities, especially with COVID-19 and its global dominance, seems to pose more serious challenges, threats and disruptions to the jobs of academic librarians. The protocols that came with the pandemic appear to bolster the unwillingness of some students and academic staff to stay away from libraries. Social distancing and the wearing of face masks have become the trend, while sneezing or coughing in public creates fear. As a consequence, library staff and their clientele now operate remotely. This strengthens the need for the invocation of continuing professional development (CPD) to assist librarians in becoming equipped to perform their functions with ease. CPD can facilitate new ideas that may be effectively deployed to provide appropriate services in both good and uncertain times.

Statement of the problem

The worth of an academic library can largely be seen in the quality of the learning, teaching and research that is generated in its institution. An academic library is expected to make quality services promptly available to its users as and when the need arises. Recent global developments occasioned by the COVID-19 pandemic have resulted in many changes in the workplace and demonstrated that most professionals appear ill-equipped to respond to the emerging challenges.

While the lecturers at many institutions of learning in Botswana appear to have promptly risen to the new challenges through the rapid adoption of online teaching, preliminary observations suggest that academic librarians are not sufficiently equipped to cope with the demands of the times. It follows that unless librarians regularly become updated and upskilled through CPD, they may not be able to cope effectively with the demands of today, using only the knowledge and skills acquired during their school years. It is evident that academic librarians cannot afford to be complacent and use old skills to tackle new demands and nascent new systems in the information environment. In order to ensure the satisfactory provision of library and information services in the ever-changing world of work, the CPD of the librarians should be considered obligatory, not only by the library management, but also by the academic librarians themselves. Given the education and training received in response to the large number of emerging challenges, this study examines the extent to which academic librarians in Botswana have been coping with various expectations at work.

A search through the extant literature on CPD in academic librarianship shows that very little research has been done on the subject in Botswana. This study is therefore considered appropriate to make a significant contribution to knowledge on the subject and how the gap could be filled.

Literature review

Recent developments in the academic world have demonstrated that libraries cannot be static, and neither can the librarians who offer services in them. Changes are being witnessed in academic library practice, and librarians are expected to adapt to these changes. Librarians therefore need to regularly update their knowledge to ensure promptness and efficiency in meeting the information needs of their clientele. Oladokun et al. (2021) claim that a thorough search of the literature on CPD in academic libraries or librarianship generally in Botswana showed that no ostensible work has been carried out on CPD. Relatedly, Moonasar and Underwood (2018) state that the information available on the perception of the need for CPD by the LIS sector in South Africa is limited. The reasons for the lack of take-up of CPD opportunities vary, from lack of finances to the reluctance of management to release staff to attend such courses.

In their consideration of the prospects for CPD for LIS professionals in Nigeria, Adomi and Nwalo (2003) affirm that the LIS profession is service-oriented and requires continually updated knowledge and skills for effective performance. The authors submit that library and information knowledge and skills are not acquired just once but have to be constantly updated. In their study on mapping the future for academic librarians, Pinfield et al. (2017) claim that libraries are changing, and envisage that the library that we know now will be different from the library of the next decade. Highlighting some of the strains on academic libraries, these authors assert that there are myriad political, economic and other pressures creating demands on higher education and libraries. In their comparative study of perceived work-related stress among the librarians in two academic libraries in southern Africa, Akakandelwa and Jain (2013) state that while the results show significant levels of stress between the two universities in seven stressful situations, the University of Botswana library staff experienced more stressful situations than staff at the University of Zambia library. Staley and Malenfant (2010) appear to lend credence to the above assertion in their report on the future thinking of academic librarians when they emphasize the notion that academic libraries are part of a larger ecosystem, and librarians should be consistently scanning the environment to look for signs of the changes that may come.

Even as libraries are changing, quality is expected by users with respect to the education received and services offered. Whitehall (1992), in a review of quality in library and information services, aptly states that if quality did not exist, it would have to be invented to satisfy a need. Quality can be measured by the performance of library staff. Adomi and Nwalo (2003) believe that the efficiency of any library or information centre in meeting the information needs of its clientele to a large extent depends on the calibre of the staff. As if to invent quality in library and information services, Mwaniki (2018) affirms that today's academic librarians' skills should be shaped by user needs. This probably accounts for the study by Ketlhoilwe and Molatedi (2015) at the University of Botswana. When they asked librarians about the technology skills they had, all of the respondents (100%) indicated that they had online search skills. Social media skills came in second with 61%, and the least reported skills included web design (23%), hardware troubleshooting (19%), software troubleshooting (13%) and web maintenance (6%). Interestingly, these authors indicate that their search of the literature revealed that the changing information-seeking patterns and behaviour of clients who are becoming less visible in the library calls for reference librarians not only to have online search skills, but also to have computer troubleshooting and web-design skills. In offering his view on the possible CPD quality preparation that academic libraries need to have and make for the challenges ahead, Kaur (2015) states that libraries must make strategic choices in four distinct domains – namely, virtual libraries, portal libraries, user-friendly libraries and collection-creation libraries. Kaur (2015) affirms that the digital future of academic libraries will consist of various aspects, such as e-literacy, Library 3.0, open access and context-aware computing.

In the same vein, Madge (2016), in a study conducted in Romania, reveals that most directors of academic libraries acknowledged that an ever-increasing level of digitization, the transformation of libraries into electronic libraries and the increased use of technologies constitute the main direction of academic libraries. Madge believes that such measures are required to adapt to the changes in society and exhibit a greater involvement in community life, as well as interdependence with other areas. Madge further asserts that diversification, digitization and creativity are necessities for an academic library. Han and Liu (2009), Le (2015) and Madge (2016) are of the opinion that, in order to ensure quality, the following skills are necessary for an academic librarian in the new age:

- Training in using databases and electronic information resources in general, and library software;
- Skills in the use of discovery and delivery products and e-learning applications;

- Basic specialty education, which confers the skills necessary to provide traditional library activities and services;
- Managerial, planning, organization and coordination skills;
- Flexibility, creativity, teamwork and collaboration skills.

Appleton et al. (2011) and Knight (2017) view academic librarians as change-makers. Specifically, Knight (2017) states that, in the digital era, academic librarians must readily accept, be responsive to and anticipate change to maintain and justify their relevance to stakeholders. Regrettably, Knight's findings indicate that not all librarians are prepared to embrace change. Knight (2017: 295) further explains that 'academic librarians must be knowledgeable of their libraries' strengths and weaknesses in relation to current trends and practices as well as the future direction of libraries with a view to formulating, implementing, and developing plans for continuous growth'. In the belief of the Association of College and Research Libraries (2012), technology continues to drive much of the futuristic thinking within academic libraries. The Association is emphatic that the key trends driving educational technology identified in the 2012 Horizon Report are equally applicable to academic libraries. The observed trends comprise people's desire for information and access to social media and networks anytime, anywhere; the acceptance and adoption of cloud-based technologies; more value placed on collaboration; challenges to the role of higher education in a world where information is ubiquitous and alternate forms of credentialing are available; new education paradigms that include online and hybrid learning; and a new emphasis on challenge-based and active learning. Ojedokun and Okafor (2015) also support the view that information sources are currently mainly in electronic formats, such as e-books and e-journals, which can only be accessed through the Internet and online databases. In this respect, they assert that all libraries are striving to provide a digital environment, therefore services for users should also involve e-services, which requires library staff to have ICT skills.

Whether in the current iteration or future direction of the academic library, CPD for academic librarians should be seen as a necessity for the attainment of success and relevance. Mathew et al. (2011) note that librarians engage in continuing education programmes for various reasons, including the need to acquire new skills, update their knowledge or basic education, get trained in the latest technologies, improve library services, train junior staff and improve relations with fellow professionals. In their literature review, Saleem and Ashiq (2020) observe that most of the efforts of CPD have been related to technical aspects, such as library automation, reference management software and searching techniques. They assert that there is an immediate need to offer CPD opportunities in areas where professionals are greatly lacking, including communication skills, library leadership, information/digital literacy skills and subject/domain knowledge. Ukach and Onuoha (2013) appear to support the above findings when they affirm that CPD is usually driven by several factors, including an appreciation of the information challenges encountered by users in the electronic information environment and the desire to acquire the relevant skills necessary for responding effectively to the information needs of users.

Librarians have diverse opinions and perceptions with regard to CPD. Alawadhi (2015), Anwar and Warraich (2013) and Moonasar and Underwood (2018) note the views of librarians that CPD programmes are important for developing a professional workforce and maintaining professional competence, improving one's knowledge, improving the effectiveness of service delivery within the library, and allowing for a better understanding of ICTs and their impact on libraries. While these authors affirm that personal motivation is a major factor that helps one engage in CPD activities, they also suggest that CPD should be provided by professional library associations. In its contribution to the debate, the IFLA's (2021) Continuing Professional Development and Workplace Learning Section sums up its view when it affirms that new developments and trends in ICT, the higher expectations of users, the requirements of employers and managers of libraries and information service organizations, and competition from information professionals in the broader information industry emphasize the imperative for associations and institutions to be 'learning organizations' and develop their staff by providing opportunities for CPD and training in the workplace, and for individuals to be responsible for their own career planning and development.

Objectives of the study

The main objective of the study was to assess the performance of academic libraries in the new age in Botswana, with the belief that CPD would be a major factor. Specifically, the study aimed to:

- Determine academic librarians' understanding of the developments or changes in their profession over the years and the need for CPD in Botswana;

- Examine librarians' perception of the quality of LIS education in Botswana;
- Determine the extent to which academic librarians in Botswana perform different library tasks and professional functions.

Research methodology

This study adopted a mixed-methods approach. Integrating the elements and benefits of both quantitative research and qualitative research, George (2021) states that mixed methods can assist in gaining a more complete picture than a stand-alone quantitative or qualitative study. This study is a continuation of Oladokun et al.'s (2021) work, which used only quantitative data. The current study adopted both a quantitative and a qualitative approach. Furthermore, in terms of their objectives, research questions and findings, the two studies differ significantly.

The neXus1 and neXus2 survey instruments, developed by Hallam (2008) for the Australian Library and Information Association, were adopted for this study, after permission had been granted. The questionnaire largely consisted of closed-ended questions with a five-point Likert scale to measure the level of agreement or disagreement of the respondents. It was distributed both through email and self-administration to academic librarians in Botswana. The sampling technique adopted was a census technique, involving all professional librarians in each of the institutions that participated in the study. The participating institutions numbered 18 and comprised all four public universities in Botswana, three degree-awarding private institutions, two other public degree-awarding institutions, three colleges of education, five institutes of health sciences and one degree-awarding vocational technical college. In order to gain enhanced insight and clarify some possible grey areas on CPD-related issues, semi-structured interviews were arranged to source data from five purposively selected high-level professionals, comprising the heads of three academic libraries, the president of the Botswana Library Association, and the head of the Department of Library and Information Studies at the University of Botswana.

Of the 197 copies of the questionnaire distributed, 116 usable copies were returned, providing a 58.9% response rate. All of the five targeted professionals for interviews were available. The Statistical Package for the Social Sciences (SPSS) Version 24 was used for the quantitative data analysis. The data collected for the study was collated and analysed using the descriptive statistics of frequency counts, percentages, means and standard deviations. The qualitative data was thematically analysed and presented in response to the relevant objectives of the study.

Table 1. Number of respondents.

Gender		f	%
Valid	Female	76	65.5
	Male	36	31.0
	Total	112	96.6
Missing	System	4	3.4
Total		116	100

Table 2. Place of study of the respondents.

Place of study		f	%
Valid	Botswana	89	76.8
	Overseas	23	19.8
	Total	112	96.6
Missing	System	4	3.4
Total		116	100

Demographic characteristics

As shown in Table 1, the respondents were split by gender, with females numbering 76 (65.5%), which was more than double the number of male respondents, at 36 (31.0%).

Table 2 shows the place of study of the respondents. They had been asked where they trained for their library qualifications. The findings show that 89 (76.8%) respondents did their study in Botswana, while 23 (19.8%) studied outside Botswana and 4 (3.4%) did not respond to the question. By virtue of the University of Botswana being the only institution having LIS as a programme in the country until about four years ago, it can be said that most – if not all – of the respondents who claimed that they had studied in Botswana were products of the University of Botswana.

With regard to programme completion, 76 (65.5%) respondents indicated that they had graduated more than five years ago, 35 (30.2%) had completed their studies less than five years ago, and five (4.3%) omitted to answer the question. The details are shown in Table 3.

The respondents were asked to indicate if they were members of the Botswana Library Association or not. As can be observed from Table 4, of the total of 116 respondents, less than half (49 or 42.2%) claimed that they were registered members of the Botswana Library Association, while 64 (55.2%) indicated that they were not members. The implication is that whenever the Botswana Library Association organizes CPD programmes, as it occasionally does, not all academic librarians will directly benefit from them. According to its president, the Association often organizes programmes for its members.

Table 3. When the respondents graduated.

Time of graduation		*f*	%
Valid	< 5 years	35	30.2
	> 5 years	76	65.5
	Total	111	95.7
Missing	System	5	4.3
Total		116	100

Table 4. Membership of the Botswana Library Association.

Are you a member of the Botswana Library Association?		*f*	%
Valid	Yes	49	42.2
	No	64	55.2
	Total	113	97.4
Missing	System	3	2.6
Total		116	100

Librarians' understanding of developments or changes in their profession

The first objective of the study sought to gauge academic librarians' perception of what they considered had changed in their profession over the last five years or more. To achieve this, a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) was adopted. The respondents were asked to tick the option they considered the most appropriate for each of the statements presented. In the analysis, the Likert scale options were aggregated into three options – that is, *strongly agree* and *agree* were combined into *agree* = 4; *neutral* stood alone; and *strongly disagree* and *disagree* were combined into *disagree* = 2. The analysis involved calculating the frequencies, percentages and means of the responses, as well as the standard deviation (*SD*) for each statement. As shown in Table 5, with the highest mean of 4.20 and *SD* of 0.94, at the top of the table is 'I am currently required to work harder', where 80 (79.2%) respondents agreed with the statement, 15 (14.9%) were neutral or undecided, and only 6 (6.0%) disagreed. This is followed by those who affirmed that 'My job currently requires more skill'. The results of this affirmation reveal a high mean of 4.06 and *SD* of 1.09, with 74 (74.8%) respondents in agreement, 13 (13.1%) neutral and 12 (12.1%) in disagreement. The respondents also demonstrated a high response to 'I am currently required to learn more new tasks', with a mean of 4.04 and *SD* of 1.09, where 70 (70.7%) agreed with the statement, 20 (20.2%) were neutral and 9 (9.1%)

Table 5. Measurement of how librarians' job has changed over the last five years or more.

Statements: How librarians' job has changed over the last five years or more	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		M	SD
	f	%	*f*	%	*f*	%	*f*	%	*f*	%		
I am currently required to work harder	42	41.6	38	37.6	15	14.9	5	5.0	1	1.0	4.20	0.94
My job currently requires more skill	39	39.4	35	35.4	13	13.1	10	10.1	2	2.0	4.06	1.09
I am currently required to learn more new tasks	39	39.4	31	31.3	20	20.2	6	6.1	3	3.0	4.04	1.09
I am now required to perform a wider variety of tasks	34	34.3	34	34.3	16	16.2	12	12.1	3	3.0	3.91	1.15
I am now required to perform more high-tech tasks	24	24.2	39	39.4	17	17.2	16	16.2	3	3.0	3.72	1.15
My job is currently more interesting	27	26.5	32	31.4	29	28.4	7	6.9	7	6.9	3.69	1.14
I am now required to perform more routine tasks	20	20.2	31	31.3	31	31.3	12	12.1	5	5.1	3.56	1.15
I am currently concerned about my job security	20	20.0	32	32.0	22	22.0	15	15.0	11	11.0	3.41	1.32
My job is currently more rewarding	17	16.7	24	23.5	32	31.4	21	20.6	6	5.9	3.30	1.20
I am currently less motivated to do my work	13	13.0	28	28.0	32	32.0	13	13.0	13	13.0	3.21	1.27
My job is currently more stressful	16	16.0	17	17.0	33	33.0	27	27.0	7	7.0	3.14	1.24

disagreed. In line with the other statements with high means, 'I am now required to perform a wider variety of tasks' also received a significant response, with a mean of 3.91 and *SD* of 1.15. The findings show that 68 (68.6%) respondents agreed with this statement, 16 (16.2%) were neutral and 15 (15.1%) disagreed. The reactions of the respondents to two seemingly opposing statements – 'My job is currently more interesting' and 'I am currently less motivated to do my work' – are worthy of note. The former recorded a mean of 3.69 and *SD* of 1.14, with 59 (57.9%) respondents agreeing with the statement, 29 (28.4%) neutral and 14 (13.8%) disagreeing. The latter resulted in a mean of 3.21 and *SD* of 1.27, with 41 (41.0%) respondents agreeing with the statement, 32 (32.0%) neutral and 26 (26.0%) disagreeing. Even when asked to respond to 'My job is currently more stressful', the mean recorded was 3.14 and the *SD* was 1.24, with those who agreed numbering 31 (31.0%) and about the same number of respondents being neutral (33 or 33.0%) or disagreeing (34 or 34.0%). The other details are as shown in Table 5.

An attempt was made to solicit the opinions of the interviewees on the changes that they had observed in their profession over the past five years or more. All of the interviewees indicated that things had changed. One of the respondents remarked:

> Though it appears odd, the reality today is, it is the library that is now on the trail of the students and, surprisingly, many academic staff as well, to come to the library and be served. We strategize and go out in search of the students and lecturers to market our services and request to serve them.

Another respondent commented:

> You know, we are in the age of technology now and, of a truth, several of our students and lecturers are far ahead of the librarians in the use of ICT to obtain their information needs. Many of them do not feel the need to ask for assistance from the library.

Another respondent observed: 'While some of our librarians have adequate education on paper, they lack practical hands-on training to effectively execute their duties as required today'. Another respondent also said *'unlike in the time past, the new dawn in the profession demands that librarians are creative, innovative and self-directed to function effectively in meeting the information needs of the new knowledgeable, highly enterprising and technologically know-how users'* When asked if librarians had adequate access to CPD to enable them to cope with the trends in the profession, the general consensus was that libraries tried to create opportunities and assist librarians within the limits of the funds available. In her response, one of the respondents disclosed that the 'library is not catered for like academic departments in terms of funding and this has limited our effort to adequately provide CPD to staff'. Another respondent appeared to indict librarians when noting: 'While there is a lot to learn for better and improved performances, many librarians unfortunately fail to take it [CPD] as a personal responsibility; they limit themselves only to what the management is able to offer'.

Perceived quality of LIS education in Botswana

As shown in Table 2, 89 (76.8%) of the respondents were trained in Botswana and the rest travelled overseas for their professional qualification. Considering the fact that the majority of the respondents (76, 65.5%) had practised academic librarianship for more than five years, as shown in Table 3, the second objective of the study was to examine librarians' perception of the quality of LIS education in Botswana from the perspective of the respondents. They were asked to indicate the extent to which they believed their LIS education had prepared them with the necessary skills to work or operate. The responses were computed based on a five-point Likert scale in a similar manner to the first objective. The analysis involved computing the frequencies, percentages and means of the responses, as well as the *SD* for each statement. 'Quality of education provides me with general skills' was the statement that attracted the highest mean (4.23) and *SD* (0.99), where 93 (85.5%) respondents agreed with the statement, 10 (9.1%) were neutral or undecided, and only 6 (5.5%) disagreed. This was closely followed by those who claimed that, with their education, they 'Can apply what I learnt to what I do in my library job'. The results of this statement revealed a high mean of 4.15 and *SD* of 0.88, with 94 (87.8%) respondents in agreement, 7 (6.5%) neutral and 6 (5.6%) in disagreement. The perceptions of the respondents also revealed a significant response to their education providing them with 'Information technology skills', yielding a mean of 3.85 and *SD* of 1.00, with 84 (77.3%) respondents agreeing with the statement, 11 (10.3%) neutral and 12 (11.1%) disagreeing.

Considering how the education they had received had provided them with a 'Realistic depiction about what it is like to work as a library and information professional', the overall mean was 3.84 and the *SD* was 0.98. The findings reveal that 77 (74.8%) respondents agreed with this statement, 16 (15.5%) were

Table 6. Perceived quality of LIS education in Botswana.

Statements: Quality of education provides me with	Strongly agree		Agree		Neutral		Disagree		Strongly disagree			
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*M*	*SD*
General skills	52	47.3	41	38.2	10	9.1	1	0.9	5	4.6	4.23	0.99
Information technology skills	24	22.2	60	55.1	11	10.3	7	6.5	5	4.6	3.85	1.00
Management skills	17	15.7	47	43.5	30	28.7	10	9.3	3	2.8	3.61	0.96
Leadership skills	17	15.7	45	42.6	29	26.9	11	10.2	5	4.6	3.54	1.03
Business skills	18	16.7	22	21.3	38	35.2	20	18.5	9	8.3	3.19	1.17
Problem-solving skills	20	18.5	44	41.7	27	25.0	11	10.2	5	4.6	3.59	1.05
Realistic depiction about what it is like to work as a library information professional	24	23.3	53	51.5	16	15.5	6	5.8	4	3.9	3.84	0.98
Can apply what I learnt to what I do in my library job	38	35.5	56	52.3	7	6.5	3	2.8	3	2.8	4.15	0.88

neutral and 10 (9.7%) disagreed. On the 'management skills' received through training, a mean of 3.61 and *SD* of 0.96 were recorded, with 64 (59.2%) respondents agreeing that the skills prepared them to work in a library, 30 (28.7%) neutral and 13 (12.1%) disagreeing. The acquisition of 'problem-solving skills' was also examined, and the results reveal a mean of 3.59 and *SD* of 1.05, with 64 (60.2%) respondents agreeing with the statement, 27 (25.0%) neutral and 16 (14.8%) disagreeing. Similarly, on the respondents' perception of learning 'leadership skills' through their LIS education, the results show a mean of 3.54 and *SD* of 1.03, with 62 (58.3%) in agreement, 29 (26.9%) neutral and 16 (14.8%) in disagreement. In last place is 'Quality of education provides me with business skills', where a mean of 3.19 and *SD* of 1.17 were recorded. A total of 40 (38.0%) respondents agreed, 38 (35.2%) were neutral and 29 (26.8%) disagreed. Further details are presented in Table 6.

When asked during the interviews of their thoughts on the quality and/or current state of library education in Botswana, one respondent expressed their regrets: 'There is a vast gap between what library school follows as theory and what the practitioners experience or what the organizations need'. Seemingly in support of this assertion, another interviewee commented: 'There is need to engage more with industry to ensure that the curriculum talks to the needs of industry'. This respondent affirmed that the 'current curriculum is more on theory than industrial experience'. Another respondent stated that 'the training of Botswana library education is largely traditional'. Only one of the respondents interviewed believed that the training was excellent. A follow-up question asking about their beliefs regarding whether librarians were adequately educated for their current roles generated further adverse comments. One respondent asserted: 'Quite a number of our librarians lack the skills to flexibly adapt to the ever-changing needs'. While also admitting that Botswana's librarians were not adequately educated for their current roles, another respondent was of the view that librarians lack the knowledge that the market needs. Only one respondent believed that 'the librarians coming from the University of Botswana are adequately trained for their current roles'. This respondent, however, noted that the environment in their workplace was demoralizing for librarians.

Academic librarians' performance of different library tasks

The study also aimed to determine the frequency and current range of the academic librarians' performance of different tasks and professional functions in Botswana. In pursuit of this, library tasks were categorized into five groups. Table 7 presents two categories – Collection Development/Public Service and Technical and Bibliographic Services – while Table 8 contains three groups – Information Technology, Administration/Management, and Professional Development and Participation. In each category, a number of related tasks were listed. The respondents were questioned on the extent to which they performed the tasks listed in each of the groups. In the questionnaire, a five-point Likert scale (1 = *never* to 5 = *very often*) was used. The respondents were provided with statements to measure the extent of their performance of the library tasks. In the analysis, the Likert scale options were aggregated into three options – that is, *never* stood alone; *rarely* and *sometimes* were combined into 2 = *occasionally*; and *often* and *very often* were combined into 3 = *frequently*. The analysis

Table 7. Academic librarians' performance of library tasks: Collection Development/Public Service and Technical and Bibliographic Services.

Statements: How often do you perform the following tasks?	Never		Rarely		Sometimes		Often		Very often			
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*M*	*SD*
Collection Development/Public Service												
Collection development, evaluation and management	9	8.0	12	10.7	27	24.1	31	27.7	33	29.5	3.60	1.24
Reference, information service and research support	6	5.4	6	5.4	24	21.6	27	24.3	48	43.2	3.95	1.17
Instruction in information literacy, library use, library resources and research	6	5.4	4	3.6	21	18.9	24	21.6	56	50.5	4.08	1.15
Liaison activities	13	11.8	7	6.4	21	19.1	34	30.9	35	31.8	3.65	1.31
Technical and Bibliographic Services												
Database content management and organization of information resources	28	25.2	7	6.3	20	18.0	22	19.8	34	30.6	3.24	1.57
Creation and maintenance of bibliographic records	36	33.3	11	10.2	18	16.7	13	12.0	30	27.8	2.91	1.64
Interlibrary loan activities	29	27.1	19	17.8	29	27.1	18	16.8	12	11.2	2.67	1.34
Acquisition, receipt and payment of library resources	31	28.2	16	14.6	13	11.8	17	15.5	33	30.0	3.05	1.63
Circulation and discharge of library resources	18	16.2	14	12.6	9	8.1	16	14.4	54	48.7	3.67	1.56
Sorting, shelving and filling of library resources	8	7.1	9	8.0	12	10.6	14	12.4	70	62.0	4.14	1.29

Table 8. Academic librarians' performance of library tasks: Information Technology, Administration/Management, and Professional Development and Participation.

Statements: How often do you perform the following tasks?	Never		Rarely		Sometimes		Often		Very Often			
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*M*	*SD*
Information Technology												
Network management and technical support	68	62.4	16	14.7	8	7.3	8	7.3	9	8.3	1.84	1.31
Web and/or intranet development and management	75	68.2	13	11.8	5	4.6	9	8.2	8	7.3	1.75	1.29
Database systems creation and management	72	65.5	7	6.4	15	13.6	7	6.4	9	8.2	1.85	1.33
Administration/Management												
Supervision and evaluation of personnel	37	33.3	12	10.8	7	6.3	23	20.7	32	28.8	3.01	1.68
Managing training and staff development	57	52.3	9	8.3	9	8.3	16	14.7	18	16.5	2.35	1.61
Organizational planning and decision-making	39	35.1	9	8.1	20	18.0	25	22.5	18	16.2	2.77	1.53
Policy development	34	30.6	16	14.4	19	17.1	29	26.1	13	11.7	2.74	1.43
Marketing and public relations	19	17.1	20	18.0	34	30.6	21	18.9	17	15.3	2.97	1.30
Professional Development and Participation												
Participate in professional organizations	26	24.1	20	18.5	20	18.5	28	25.9	14	13.0	2.85	1.39
Attend formal conferences, workshops and training events	15	13.5	16	14.4	39	35.1	24	21.6	17	15.3	3.11	1.23
Research and publishing in the field of study	57	53.8	21	19.8	17	16.0	7	6.6	4	3.8	1.89	1.14

involved computing the frequencies, percentages and means of the responses, as well as the *SD* for each task. For Collection Development/Public Service, the task of 'Instruction in information literacy, library use, library resources and research' recorded a high mean of 4.08 and *SD* of 1.15. The findings show that 80 (72.1%) respondents frequently performed this task, 25 (22.5%) occasionally performed it and only 6 (5.4%) indicated they never carried out the task. 'Reference, information service and research support' received an overall mean of 3.95 and *SD* of 1.17, with 75 (67.5%) respondents performing the task frequently, 30 (27.0%) occasionally and 6 (5.4%) never. With respect to 'liaison activities', a mean of 3.65 and *SD* of 1.31 were recorded, where 69 (62.7%) respondents performed the task frequently, 28 (25.5%) occasionally and 13 (11.8%) never. The task of 'Collection development, evaluation and management' recorded a mean of 3.60 and *SD* of 1.24, with 64 (57.2%) respondents indicating that they performed the task frequently, 39 (34.8%) occasionally and 9 (8.0%) never.

In the second group, Technical and Bibliographic Services, the task of 'Sorting, shelving and filling of library resources' recorded a high mean of 4.14 and *SD* of 1.29, where 84 (74.4%) respondents frequently performed this task, 21 (18.6%) occasionally performed it and only 8 (7.1%) never did. The task of 'Circulation and discharge of library resources' recorded a mean of 3.67 and *SD* of 1.56, with 70 (63.1%) respondents performing the task frequently, 23 (20.7%) occasionally and 18 (16.2%) never. 'Database content management and organization of information resources' was another task that was examined. It resulted in a mean of 3.24 and *SD* of 1.57, with only 56 (50.4%) respondents frequently performing the task, 27 (24.3%) occasionally carrying it out and 28 (25.2%) never doing it. For 'Acquisition, receipt and payment of library resources', a mean of 3.05 and *SD* of 1.63 were recorded. The findings reveal that 50 (45.5%) respondents carried out the function frequently, 29 (26.4%) occasionally and 31 (28.2%) never. Other details are as detailed in Table 7.

Further, with regard to academic librarians' performance of tasks and professional functions, the heads of the libraries were asked, after showing them the tasks and functions listed in Tables 7 and 8, which they thought librarians needed CPD training on. All of the interviewees concurred that librarians would benefit from occasional updating and reskilling on virtually all the tasks and functions listed, though some might require more training than others. One of the interviewees commented: 'You cannot dismiss any of these functions. As a matter of fact, comprehensive as your list may appear to be, I'm not oblivious to the possibility that some may have been skipped, but are equally necessary'. When asked if they thought librarians had adequate education and training for their various roles, one of the respondents remarked that while librarians appeared to 'have adequate education on paper, they lack practical hands-on training to effectively execute their duties'. Another said that she did 'not believe the librarians had adequate training for the various tasks and functions expected of them in practice', adding that 'they however learn on the job'. Another view was that quite a number of academic librarians appear to have only grasped the theoretical aspects of their training and fail to relate, or find it difficult to apply, theory to practice.

When asked to indicate the approach their libraries followed in respect of the task of staff development, the interviewees indicated that they organized CPD on an ad hoc basis, subject to the availability of funds and urgency of needs. They indicated that as much as they would have liked to have had a formal and documented approach, the lack of funds was a hindrance. One of the respondents said: 'Library staff is not given the type of reckoning extended to academic staff in terms of funding for research and allowing them time off to engage in activities that promote CPD'. Another respondent noted: 'Since librarians are considered as support staff, other issues considered core are given priority over libraries by management of the institution'. Another respondent affirmed: 'There is always a cry for funding to support training, but we encourage staff to take CPD as their personal responsibility'.

In Table 8, the results of the three categories of Information Technology, Administration/Management and Professional Development and Participation are presented. Virtually all of the tasks listed under Information Technology recorded a low mean, which would seem to indicate underperformance or a deficit in information technology tasks. For instance, 'Database systems creation and management' as a task recorded an overall mean of 1.85 and *SD* of 1.33, with only 16 (14.6%) respondents frequently performing this task, 22 (20.0%) occasionally performing it and a huge 72 (65.5%) never performing the task. Similarly, 'Network management and technical support' yielded a mean of 1.84 and *SD* of 1.31, with only 17 (15.6%) respondents performing the task frequently, 24 (22.0%) occasionally and a significant 68 (62.4%) never. The last itemized task in this group – 'Web and/or intranet development and management' – recorded a paltry mean of 1.75 and *SD* of 1.29; only 17 (15.5%) respondents performed this task frequently, 18 (16.4%) occasionally and a huge 75 (68.2%)

never. These results seem to give an indication of the reasons why academic librarians may not be able to promptly adopt ICT to provide services for their clientele.

Administration/Management, as observed in Table 8, constitutes another group of professional functions. It is senior professionals who function mostly in this group. It is therefore no surprise that the mean trends low in most of the tasks tested. ‘Supervision and evaluation of personnel’ as a task recorded a mean of 3.01 and *SD* of 1.68, with 55 (49.5%) respondents frequently performing the task, 19 (17.1%) carrying it out occasionally and 37 (33.3%) never doing it. ‘Marketing and public relations’, as another task that should be performed by every librarian, recorded a mean of 2.97 and *SD* of 1.30, with only 38 (34.2%) respondents performing the task frequently, 54 (48.6%) occasionally and 19 (17.1%) never. Other details can be seen in Table 8.

The last of the groupings is Professional Development and Participation. The questionnaire sought to determine the extent of the academic librarians’ participation in the listed professional development activities. ‘Attend formal conferences, workshops and training events’ was one of the tasks listed here, and it yielded a mean of 3.11 and *SD* of 1.23, with 41 (36.9%) respondents claiming they participated in the task frequently, 55 (49.5%) occasionally and 15 (13.5%) never. ‘Participate in professional organizations’ was another task tested. It resulted in a mean of 2.85 and *SD* of 1.39, with 42 (38.9%) respondents indicating that they frequently performed the task, 40 (37.0%) that they performed it occasionally and 26 (24.1%) that they never carried it out. ‘Research and publishing in the field of study’ was also tested and yielded a low mean of 1.89 and *SD* of 1.14, with only 11 (10.4%) respondents saying they performed the function frequently, 38 (35.8%) occasionally and a huge 57 (53.8%) never. When questioned about whether academic librarians ought to carry out research and publish or not, virtually all of the interviewees indicated the need for them to publish. One of them asked *“where is the pride of an academic librarian who assists the faculty and researchers in acquiring and delivering appropriate research materials and recuse themselves from the task of research and publishing?”*

Discussion

This study has uncovered a number of issues that reveal the professional practice of academic librarians in relation to CPD in Botswana. The issues revolve around the changes that have taken place in the job of an academic librarian over the years, the perception of the quality of LIS education in Botswana, and differences of opinion between academic librarians and their managers with regard to performance, knowledge and skills of the former. It also highlights the performance of different library tasks and functions by librarians and the yawning gap librarians will need to bridge to cope effectively with the trends in the modern age of information dissemination.

With respect to the changes experienced in their job over the past years, the study reveals that more than 70% of the respondents were of the view that they were currently required to work harder, learn more skills and carry out new tasks. The implication of this finding is that, to provide effective services for their numerous and diverse clientele, librarians must buckle down, bridge the gaps and be prepared to learn either through self-development or library-organized CPD activities. Adomi and Nwalo (2003) appear to confirm this assertion when they note that the LIS profession is service-oriented and requires continually updated knowledge and skills for effective performance. Other statements that attracted significant responses include the requirement to perform a wider variety of tasks and more high-tech tasks. The findings fall below expectation from both the quantitative survey administered to the librarians and the qualitative information offered during the interviews. For instance, the library heads stated that most of the new and more wide-ranging tasks that were required to be performed were ICT-related. This seems to be in accordance with the observation of Ojedokun and Okafor (2015) that libraries now allocate more space to ICT-related facilities and services, including online digital services. The librarians’ lack of skills in ICT and LIS training in Botswana were issues that came up for discussion. For instance, the heads of the libraries interviewed did not see many of the information technology skills that librarians possessed on display in their work, culminating in the aspersion that ‘the training of Botswana library education is largely traditional’. Moreover, when the information technology tasks are spelt out in Table 8, under the performance of academic librarians in different library tasks, the results reveal that these tasks were performed considerably less frequently or the majority of librarians did not perform information technology tasks. This implies the frailty of academic librarians with regard to information technology skills. Han and Liu (2009), Le (2015) and Madge (2016) believe that, for effective, high-quality modern-day services, academic librarians must be skilled in information technology and specifically trained in using databases and electronic information resources in general, library software, the use of discovery and delivery products, and e-learning applications. Also, writing on the impact of information technology in Nigerian university libraries, Ubogu (2019) advocates adequate provision for training and retraining in information technology skills for all librarians to enable them to work in the digital age.

Academic librarians perform numerous tasks, including interlibrary loan activities; the creation and maintenance of bibliographic records; instruction in information literacy, library use, library resources and research; sorting, shelving and filling of library resources; administration and management; professional development; participation in and attendance of formal conferences, workshops and training events; research and publishing in the field of study; and participating in professional organizations. They were found wanting in attending formal conferences, workshops and training events, and should be supported to do so. Oladokun et al.'s (2021) findings reveal that while 57 (49.1%) respondents claimed they had attended conferences, only 27 (23.3%) – less than half – had published or presented a paper. Table 8 in the present study also shows a low mean of 1.89 with regard to 'Research and publishing in the field of study'. This reveals gross nonchalance towards this task. Writing on the importance of encouraging librarians to publish, Lamothe (2012) observes that advancement in any field can only be achieved when participants share their ideas and experiences. He then asks: What happens when colleagues express hesitation, apprehension, lack of interest and, in some cases, outright hostility toward publishing? He believes that by relaying his publishing experiences, both positive and negative, as an academic librarian, he may alleviate the fear, doubt and resistance that some feel towards publishing their results and ideas, particularly in peer-reviewed journals. He suggests that librarians could partner with other researchers and faculty to publish their work.

Crampsie et al. (2020) assert that scholarly publishing is an expectation for many academic librarians. Citing a survey by Kennedy and Brancolini (2018) on early career academic librarians, Crampsie et al believe that academic librarians could benefit from additional graduate training in research methods. Participating in professional organizations is another area of weakness noted in the study, where only 49 (42.2%) respondents claimed membership of the Botswana Library Association. The implication is that when the Botswana Library Association organizes CPD activities, the majority of academic librarians in Botswana may not attend. Ossai-Ugbah (2013) asserts that professional associations and institutions are an excellent way to gain knowledge of one's industry or network, and to keep on top of current news affecting one's industry. She therefore affirms that membership of associations also shows your employer and your peers that you are serious about your commitment to your career.

The findings on the existence of staff development programmes reveal a near absence of any plans of note for academic librarians in Botswana. At best, the arrangements in Botswana are ad hoc. The library heads interviewed complained that libraries were not being adequately funded and that librarians were not given the same treatment as lecturers or teaching staff. This result is at variance with findings from Indonesia and Australia. Maesaroh (2012) observes that 59.4% of library managers in Indonesia had a planned staff development programme and 21.7% adopted an informal approach, while 18.8% regarded staff development as primarily the responsibility of individual staff members. In Australia, Hallam (2008) notes that 77.8% of library managers had a planned programme for staff development and 22.2% adopted an informal approach. Unlike in Botswana, where almost all library heads would consider staff development as the primary responsibility of the individual, Hallam's findings reveal that no library managers in Australia considered staff development as the primary responsibility of individual staff members.

Conclusion and recommendations

The education and training that professionals receive in library school usually prepares them for effective performance once a job has been secured. This study has established that situations can arise at work where professionals may find themselves ill-equipped with their previous knowledge or skills acquired in training, and consequently need to acquire more skills, work harder, learn new tasks and perform a wider variety of tasks. The question may arise as to whether librarians are effectively coping in their handling of various challenges that come their way at work. The results of this study of academic librarians do not subscribe to such an assertion. While academic librarians may not be harsh when assessing themselves, the accounts obtained from their supervisors indicate that librarians face serious challenges and are consequently not able to cope effectively.

More than ever, the library workforce, like other professions, is being confronted by challenges and manifold threats, not only from the volatile period through which we are living, but also from the difficulty of offering satisfactory services to their diverse, ubiquitous but also knowledgeable and technologically savvy clientele. New systems of life and activity are emerging in library and information service and the old systems of providing service are incapable of providing satisfactory performance in the new era. It therefore appears that changes and developments, which were never envisaged or taught about in library schools, are now being experienced from (potential) information-seekers. In times of emergency and an age when library users are technologically savvy, a librarian who is a technophobe or does not possess adequate information technology skills is not likely to be beneficial or relevant in the library and information service space. It is therefore essential to reskill librarians to help them swim with the new tide in the workplace. It is important for the library workforce to leapfrog into the new work environment and be relevant. To this end, CPD is critical in ensuring that the skills and competencies of the library workforce are upgraded to enable more effective performance in the diverse provision of expected services to library customers.

In light of the findings from the study, the following recommendations naturally flow:

- Formal staff development programmes should be drawn up and local experts should be consulted. With the findings showing a near absence of staff development programmes and the funding to execute them, library managers/directors should not hesitate to draw up their own staff development programmes and look internally to execute them. There are many experts within and outside the university whom an academic library could partner with to assist librarians in training and development. The library school is also available for assistance.
- The library school should be engaged. The interviewees acknowledged that academic libraries were not doing enough to make use of the advantages of the library school in Botswana, where most of them had completed their studies. Academic libraries should sufficiently engage with the library school to help achieve quality services, teaching and research outcomes, as well as develop CPD programmes. Through engagement, the notion expressed by some library managers during the interviews that the training offered to students in the school was 'more theoretical than the industrial experience' will also be nipped in the bud.
- Information technology needs special attention in CPD. As observed in Table 8, few librarians performed the information technology tasks listed. In the new digital age, librarians need to be properly trained in information technology skills to be able to help themselves and the users they serve effectively. Librarians should not have to wait for an information technology specialist every time the need arises to troubleshoot a problem. Information technology knowledge and competencies will also enable librarians to adapt emerging technologies to serve their clientele more appropriately, both in person and remotely.
- Librarians could partner with educators and academics to carry out research and publish in their field of study. The findings in Table 8 reveal that while many academic librarians attended conferences, workshops and seminars, only a handful had participated in research and publishing, with a remarkably low mean of 1.89. Therefore, as part of their CPD programmes, librarians could collaboratively partner with researchers in their institutions to gain experience and confidence in researching and writing acceptable papers for publication.
- Academic libraries should assist with registering their staff for membership of local professional associations. As indicated in Table 4, about three-fifths of the respondents claimed non-membership of the Botswana Library Association and barely participated in any of the Association's activities. A situation where less than half of the total respondents were registered as members of the Botswana Library Association is considered unsatisfactory. Table 8, under Professional Development and Participation, also confirms the fear of the inadequacy of participation in the activities of professional organizations. It is therefore recommended that each academic library subscribe to the Botswana Library Association on behalf of its staff so that all librarians can be members and benefit from the activities of the Association, including its CPD programmes.

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Community-driven care of Lanna palm-leaf manuscripts

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Abstract

Palm-leaf manuscripts are an important part of the heritage of the Lanna culture of northern Thailand. The purpose of this article is to explore the practices and attitudes towards managing palm-leaf manuscripts in three communities in northern Thailand with a view to developing a community-centric understanding of sustainable care for palm-leaf manuscripts. The study was based on interviews, which were analysed thematically. It was found that Buddhist beliefs in earning merit and the cultural value of palm-leaf manuscripts underlie community involvement. Leadership was also important, although models of leadership were different in each case. External organizations such as universities play a key role in cataloguing, preserving and using palm-leaf manuscripts. Digitization, although central to the value to external organizations, does not really promote community access. Reflecting on the drivers and challenges in the three villages, a model of community-driven care for palm-leaf manuscripts is proposed.

Keywords

Palm-leaf manuscripts, community-based participation, community involvement, Lanna culture, Thailand

Introduction

Historically, in parts of northern Thailand, particularly in what was formerly the Lanna Kingdom, palm-leaf manuscripts (PLMs) were an important means of documenting knowledge. Monks, novices and other ordained people made and used them (Digital Library of Northern Thai Manuscripts, 2016; Ongsakul, 2005). Reflecting Indian and Sri Lankan influences, the content of PLMs mainly relates to the Buddhist religion (Ongsakul, 2005). Indeed, the Lanna Tham alphabet used for PLM inscriptions was believed to be a sacred language (Injan, 2002; Ongsakul, 2005; Veidlinger, 2007). But PLMs were also used to record local wisdom in various domains, such as history, astrology, literature, local folklore and medicine (Veeraprajak, 2011). As such, they are an important part of local culture, and worthy of care and preservation.

Although PLMs are easily accessible in temple museums and the *hor trai* – halls where Buddhist texts are usually kept in monasteries – they have been significantly devalued since the Lanna Kingdom was united with Siam, now known as Thailand, in 1939. Following unification, the Lanna people were obliged to learn the Thai language, which led to people losing interest in studying Lanna Tham scripts, knowledge of which became confined to monks and a few lay people (Ongsakul, 2005; Wyatt, 2003). The predominance of the Thai language and the era of printed documents exacerbated the situation for PLMs in Thailand further. Today, even many of the monks who are directly involved with PLMs cannot read Lanna Tham script (McDaniel, 2008; Veidlinger, 2007). Many PLMs have been damaged or destroyed through insect attacks (see Figure 1), humidity, biodegradation and general neglect (Abhakorn, 1997).

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Figure 1. A PLM that has been attacked by insects.

Nevertheless, local communities – both monks and lay people – remain interested in caring for PLMs, even if they lack expertise in handling ancient documents or the financial support to obtain the tools and equipment needed (Jarusawat, 2017, 2019; Jarusawat et al., 2018). In this context, this study explores the practices and attitudes towards managing PLMs in three communities in northern Thailand (Ban Hong, Ban Saluang Nai and Pa Tum Don) with a view to developing a model of community involvement in sustainable care for PLMs.

Literature review

The growing regional interest in PLMs must be set in the context of a wider revival of Lanna cultural forms, such as costume, dance, martial arts, music, cuisine and handicrafts. Traditional music has seen a major revival, for example (Akins, 2013). One vehicle for this is wisdom classrooms, such as the Lanna Wisdom School, where the public are taught about a range of traditional practices. Naturally, this is not a case of unchanged traditions simply being reproduced. Some traditions are lost; others are reinvented (Akins, 2013). Nor is the revival always unconnected to more material considerations such as the commercial value of reviving traditional cultures to promote tourism (Schedneck, 2017).

The local revival of interest is echoed in academic interest around PLMs. Indeed, there is extensive literature on them, but primarily written by scholars of Buddhism and Thai culture (McDaniel, 2018). More information related topics are with the challenge of preserving them, and such matters as digitization and producing metadata schemas to enable effective retrieval (Lertratanakehakarn, 2014; Manmart et al., 2012). Most of this literature focuses primarily on technical aspects. A particular focus is digitization. Influenced by western concepts, many university libraries emphasize the digitization of PLMs: for example, the National Library of Myanmar, Kerala University Library in India, and Kelaniya University Library and Peradeniya University Library in Sri Lanka have sought to develop digital libraries of PLMs (Alahakoon, 2003; MacFarlane, 2020; Mohamed Sageer and Francis, 2014; Ranasinghe and Ranasinghe, 2013; Sahoo and Mohanty, 2015; Weerabahu, 2019). The concept of digitization is believed by many libraries in Thailand and other countries to be the best method for preserving ancient manuscripts (Kumar et al., 2009). Yet there is growing recognition that truly sustainable approaches to information services, especially relating to cultural heritage, imply community participation.

One of the most influential models of community participation is Arnstein's (1969) ladder of participation, developed in the context of policy development. This captures the degrees of participation, from non-participation through tokenism to citizen control. Non-participation relations are more like public relations to gain consent for a preset plan. Informing is the first step up the ladder towards participation, but there is a risk that this is top-down and one-way. Consultation is the second step, but again there is the risk that this is mere window dressing. Placation is the enlistment of a few token representatives in governing bodies, but falls short of letting real power go. Citizen control can be achieved on three levels according to Arnstein (1969): through partnership where power is really shared, delegation where citizen delegates hold power, and full citizen control. There have been many attempts to update this model, particularly for Global South contexts (Choguill, 1996), but it remains a useful reference point. Another useful model is that proposed by the International Association for Public Participation (2007), which has five layers of participation: informing, consulting, involving, collaborating and empowering. These offer useful generic starting points but it is important to find a model that considers both the specific cultural context and the specificity of the heritage context.

Table 1. Summary of participants.

	Ban Hong			Ban Saluang Nai			Pa Tum Don		
Role/occupation	*n*	Age	Gender	*n*	Age	Gender	*n*	Age	Gender
Abbot/vice abbot	1	45	Male	1	55	Male	1	17	Male
Government officer (retired)	1	67	Male	1	94	Male	2	67 and 68	Male
	2	66	Female				1	62	Female
General worker (retired)	1	65	Male	2	72 and 76	Male			
	2	62 and 64	Female	3	53, 55 and 56	Female			
Government officer				1	54	Female	1	44	Female
General worker							2	53 and 56	Male
							1	44	Female
Student				2	12 and 13	Female			
Total	7 (3 male, 4 female)			10 (4 male, 6 female) 25			8 (5 male, 3 female)		

Ganjanapan (2001) is well known in the region for developing a concept of community participation reflecting local needs. He advocated the importance of community involvement because he believed that neither individuals nor the state could be trusted not to look at communal resources (such as forests) from an exploitative perspective. Yet this does not take us much further in the context of contemporary cultural heritage.

A number of models of community participation also exist specifically for library and information science contexts, such as that proposed by Sung and Hepworth (2013). They suggest that there are eight keys to 'modelling community engagement' – namely, accountability and hierarchy, belonging, commitment, communication, a flexible approach, expertise and familiarity, genuineness, relevance, and sustainability. The two main factors affecting community engagement and activities in the community are the influence of authority and willingness to learn. But examined closely, this model does seem to be very specific to a western context, with data drawn entirely from the UK, with its long-standing democratic conditions but lack of religious consensus. Thailand is a very different cultural context.

Thus, we have useful reference points but lack well-developed models that are relevant to both the regional context and the needs of cultural heritage. Also, significantly, the story tends to be told from the point of view of external agencies, with power making room for community participation, rather than thinking about how the community itself has energy and forms of local leadership that might be driving care for its heritage. We do have one other useful starting point: in a previous article, Jarusawat et al. (2018) analysed community participation in the preservation of Lanna PLMs. The article contrasts the viewpoints of different stakeholders in how they value PLMs. It identifies a model of an upward spiral of growing community participation, echoing the five levels proposed by the (International Association for Public Participation, 2007) but adding a lower level, 'support', and recognizing the role of leadership and on the other by expert activities. This is, again, presented from the point of view of external agencies promoting increasing community participation. The current article seeks to shift the focus away from collecting institutions to study three cases where bottom-up initiatives to preserve PLMs were found. This should enable us to model community-driven processes of participation.

Methodology

This was a qualitative study that aimed to explore the views of the participants about a social phenomenon, and so interviews were the most appropriate method of data collection. Data from three communities – Ban Hong, Ban Saluang Nai and Pa Tum Don – was collected from January to June 2019. These villages were chosen because they are places where PLMs are known to be kept with care, and there is active participation by the local community. So, they should be seen as examples of current good practice rather than representative of common practice. The individual participants were selected on the basis of a mix of purposive and snowball sampling. Table 1 presents the occupations, age and gender of the 25 interviewees involved in the study.

Semi-structured interviews (30–90 minutes per person) were conducted. The questions were divided into three parts: (1) personal information – for example, age and occupation; (2) their involvement in PLM management; and (3) their views on how PLMs should be managed and, more specifically, who should be involved (clergy, lay people, external parties) and what each of their roles should be. The specific interviews questions were as follows:

1. What is your involvement with palm-leaf manuscripts?
2. Are palm-leaf manuscripts important to you? If yes, how?
3. How do you think palm-leaf manuscripts are important to Lanna?
4. What is the situation of palm-leaf manuscripts in your community, and in Thailand more generally?
5. How should Lanna cultural knowledge be protected?
6. What role and potential role does the community have in this?
7. How should palm-leaf manuscripts be stored?
8. What do you think about the digitization of palm-leaf manuscripts?
9. How are Lanna/local people involved in looking after palm-leaf manuscripts? How should they be involved?
10. What should the role of experts and libraries be in looking after palm-leaf manuscripts?
11. How can libraries help the community to develop collections, such as of palm-leaf manuscripts or other cultural material?

The interviews were conducted on-site, such as in temples, enabling the interviewer to be shown relevant material by the participants and for her to observe some of what was happening in context. Several relevant ceremonies and training events were observed and, with permission, photographed. In one case, a participant took the interviewer to his house to show her how he looked after the PLMs he owned. These observations enhanced understanding of local practice in context, helping to inform the data analysis.

After the data collection, a thematic analysis was conducted using NVivo 11. The data was analysed following the six steps suggested by Braun and Clarke (2006): familiarization with the data; generation of initial codes; searching for themes; reviewing of themes; defining and naming themes; and final write-up. The themes identified were: (1) religious beliefs; (2) community values; (3) leadership offering vision, passion and dedication; (4) external agency support; (5) sense of belonging; (6) building trust and continuity; (7) activities; (8) transformation and flexibility; (9) representative; (10) cultural pride; (11) volunteering; and (12) sustainability. Coded identifiers were used for the names of the participants to protect their anonymity.

Findings

Ban Hong

At Ban Hong, community involvement in PLMs had originated in the activities of the local abbot over two decades. As a novice, he developed the practice of using PLMs for ritual chanting. Later, he spent a number of years studying PLMs for a doctorate. Thus, his interest was both religious and informed by scholarship. It was his special personal interest in PLMs that had driven community involvement. He shared some of his knowledge with novices. In later years, he encouraged a group of around 20–30 lay people to be actively involved with PLMs too. They did not have direct knowledge of the PLMs, so their involvement was confined to helping with cleaning and making covers for them (Figure 2).

The abbot also ran courses for village members to learn about such things as the religious ideas contained in the PLMs and Lanna astrology and herbal medicine, but this was more to raise awareness of the PLMs than to impart in-depth knowledge. Thus, participation was very much premised on the abbot's leadership:

> It all depends on the leader, if the abbot wants it to be done. If he calls us to help, we will come. But if he doesn't, the PLMs will remain silent.

> If the abbot calls, we come together again. . . . We don't want to let what has been done in the past go to waste, so it is still there in the future. PLMs will survive for those who can read them and they can perhaps find content for a textbook on medicine.

The abbot also revived the Tak Tham tradition as a way to involve local people. In the Lanna language, *tak* means 'to dry', and *tham*, in this context, refers to PLMs. Tak Tham is the ancient Lanna tradition of people bringing out PLMs from where they are stored to clean and dry them in the sun. This process is an occasion for a big celebration prior to the PLMs being taken back to where they are stored.

The abbot also made connections with a German research foundation and a local university, which catalogued and microfilmed the PLMs in the 1990s. Scholars actively sought to involve the community in the care of the PLMs when they visited for scholarly purposes. At the start of their visits, they trained community members and novice monks in cleaning the PLMs. At the end of their visits, they organized an event where they reported back to the community on what they had discovered, such as the total number of PLMs, the interesting content they had found, and how the material had been classified.

Figure 2. Community members in Ban Hong cleaning PLMs in the temple building.

Figure 3. Novice monks and community members at a closing meeting with scholars in Ban Hong.

This helped the community to understand more about the value of the PLMs. Figure 3 illustrates a training session where experts from Chiang Mai Rajabhat University were reporting back to an audience of monks and community members at the end of a visit.

Ban Saluang Nai

The story in Ban Saluang Nai was somewhat different. Rather than being led by a cleric, a middle-aged lay woman had recognized PLMs as a vehicle to teach teenagers about the value of their culture. She had formed a group of around a dozen 12- to 13-year-old children, who were being trained to appreciate local culture and in the future to act as guides for religious tourists (mostly Thai people). A strong motivation for her was the desire to promote traditional Buddhist values and counter what was felt to be the pernicious influence of social media on young people. Further reinforcing this, learning the Lanna language was among the subjects in a number of wisdom classes she organized, as events to promote traditional culture. She could have developed other forms of involvement for the children, but it was significant that the focus was on traditional religious practices, such as PLMs. It was apparent that social cohesion around shared social values was a key element of her thinking. She commented:

> We need to help to develop the community to be better – not to change the community. We want to maintain a society like this as a warm community and live like a brotherhood, to help each other take care of each other. . . . We are a supportive community. Our community is about unity and reconciliation. We help each other in the community. We are a compassionate society. We'll cultivate together like this. It's fun. We love being here. Other villagers live individually or independently. Our community is the best.

She also wanted to run classes for young people to read and write the script – something that had happened in the past.

A small number of PLMs, purely with religious content, had been digitized by a religious foundation. More recently, she had reached out to Chiang Mai Rajabhat University, which was planning to carry out more digitization and cataloguing. The woman was also seeking external support from Chiang Mai Rajabhat University to establish a community museum to exhibit the PLMs that were kept at the temple. However, as with other connections the community had made with expert groups, these were one-off projects, whereas the community desired a long-term relationship. An inhibiting factor in this case was that the woman was very active in preserving the PLMs but had a lack of knowledge about the PLMs themselves. She commented:

> The community should be involved in thinking, making decisions, planning, not waiting for orders, so we can operate spontaneously. Right now, we are building a Tripitaka hall or monastery library, which is the temple repository for the Buddhist scriptures. I hope, in the future, this will be the place to be connected to the activities, by using activities linked to the space to create a tradition in the community. All of these ideas must be shared by all community members.

Pa Tum Don

The case of Pa Tum Don was different again. Here, the abbot was not greatly interested in the temple's PLMs and was too old to be very active himself. Rather, the driving force was a group of retired men, who had strong religious feelings and spent a lot of their free time in the temple. The temple was a social focus for their group. Their chief involvement with the PLMs was activities such as cleaning them, because they had limited ability to read or use them. As one of the villagers from Pa Tum Don remarked:

> If we have a body of knowledge that everyone knows together and uses continuously, it will be taken care of. If we don't teach Lanna Tham writing and the knowledge from PLMs isn't published, it won't be literated. If there is no reader to read it, it is just a piece of paper or a palm leaf.

Another activity was weaving covers for PLMs. They had organized training so that local women could be involved in making PLM covers. The weaving was itself a traditional practice.

A particular dimension of this village was that many of the inhabitants were migrants from Burma, and the majority of the local villagers, who were Christian, were uninterested in the temple. So, participation represented a form of cultural pride, linked to the idea of Lanna culture, Buddhism and ethnic identity. However, this remained a minority of the community in the village, and the participants were worried about how interest could be passed on to future generations.

The group had the idea of cooperating with scholars from Chiang Mai Rajabhat University to reproduce content from the PLMs in easy-to-understand formats, such as comics or pieces of artwork. The connection with scholars at the Chiang Mai Rajabhat University was key to the dynamic ways in which PLMs might continue to be used. Yet it also created a form of dependency, which the villagers resented. As one interviewee commented:

> Developing community engagement is not easy. So, it is very important to have the external agencies or the experts as the middleman to promote the work. Also, it must be ensured that the activities are designed well for elders, otherwise they will not be able to conduct the work by themselves. Then, everything would stop when the experts or external agencies leave.

Digitization

Because the value of digitization is discussed in the literature, it is worth reporting on the theme of community responses to this process. Here, the views

Table 2. Community involvement in the care of PLMs.

Community	Role	Key participants	Community involvement
Ban Hong	Leader/ initiator Working group/doer Supporter/ provider	Abbot Group of elderly lay people External agencies – for example, experts in PLMs, government organizations	– Cleaning PLMs (2019–) – Making covers for PLMs (2019–) – Lanna Tham classes to teach people to read the script (2017–)
Ban Saluang Nai	Leader/ initiator Working group/doer Supporter/ provider	Middle-aged lay woman A group of young people External agencies – for example, experts in PLMs, government organizations	– Young tour-guide programme (planned) – Lanna Tham classes for younger generations to raise awareness (planned) – Revival of Tak Tham ceremony (planned)
Pa Tum Don	Leader/ initiator and working group/ doer	A group of elderly laymen from a particular ethnic group	– Cleaning PLMs (2019–) – Making covers for PLMs (2019–) – Adapting PLMs into easy-to-understand formats (planned)

across the villages were similar. External partners that worked with the villages usually saw digitization as a key part of the strategy for the long-term preservation of and access to PLMs. The villagers were mostly in favour of digitization: it symbolized the cultural significance of the PLMs. However, although accessing the PLMs in digital form was theoretically convenient, the communities were not ready to do so in many ways. Only a minority could read the PLMs, either from learning from the abbot in Ban Hong or from being monks themselves in the past, so where the PLMs were not translated, they remained inaccessible even if digitized. There was also a complaint that reading the PLMs on a computer was not easy and made one's eyes sore. As a result, the digital images of the PLMs were usually printed out, but this was very costly, as one member of the Ban Hong community commented. Other members from the Ban Hong community mentioned that the people who preferred reading PLMs in a digital version were few in number because it took up a lot of time and was seen as confusing.

Further, the communities often lacked the technology or skills to access digital content: 'The community members do not have devices to access the digital files of the PLMs', mentioned one of the members from the Pa Tum Don community. Another member from the same community stated: 'We do not know how to access the digital form of the PLMs because we are elderly'.

Discussion

Table 2 summarizes the main features of the three case studies. They offer some contrasting elements and common themes. A common feature of all three communities was the importance of a focus of leadership, based on a passionate belief in the value of PLMs. Critically, however, the pattern of leadership was different in the three cases. Given the religious significance of PLMs, it is not surprising that leadership often lies with a cleric, as at Ban Hong. As a respected community figure, the abbot is highly likely to have a strong influence on the lay community. However, the other villages demonstrated the viability of lay leadership. The case of Ban Saluang Nai is particularly striking given the traditional exclusion of women from religious leadership – indeed, women were traditionally not even allowed to touch PLMs. The case reveals how far social attitudes have evolved. The character of the community members involved also differed: at Ban Hong and Pa Tum Don, it was primarily the elderly, whereas at Ban Saluang Nai, it was the young.

There were many common elements underlying these differences. We have already referred to the need for a leadership focus. The foundation for community involvement was a mix of religious belief – particularly faith in earning merit through activities around PLMs as sacred objects – and the strong influence of religion on daily life. Given that the vast majority of Thai people are Buddhists, this is a powerful force. This was further linked to a strong sense of cultural pride and desire for social cohesion. Attempting to sustain or revive Lanna culture and its associated cohesive social values was a strong driver in Ban Saluang Nai and Pa Tum Don.

In addition, external organizations, particularly research institutions, played a critical role because

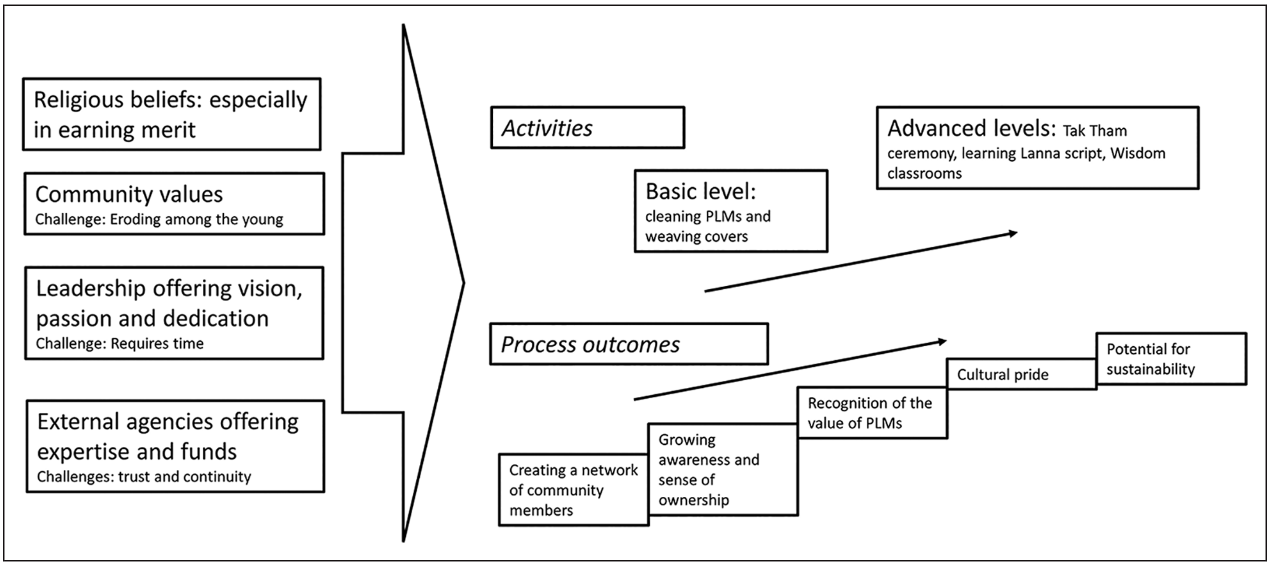

Figure 4. A model of sustainable community-driven care of Lanna PLMs.

local people had limited knowledge of reading the script or of technical issues such as preservation practices or cataloguing. External partners brought knowledge, expertise and sometimes financial support. But only trusted institutions were involved in this way and collaborations with external organizations did not always run smoothly. External partnerships also tended to lack continuity, with an intervention relating to a particular project; when this was completed, the relationship was lost, whereas the local community sought sustained engagement. Community involvement was enthusiastic but inherently limited by the lack of knowledge of the scripts to practices such as cleaning and making covers.

In all three cases, the initiatives had a strong 'bottom-up' driver from the community rather than primarily being initiated by external entities such as scholars or heritage collecting organizations. Yet there was a degree of dependence on external expertise. In terms of Arnstein's (1969) ladder, the role of external entities was one of partnership, where local people offered access to the PLMs to scholars and libraries in return for access to their expertise. This expertise was needed for interpretation, translation, cataloguing and preservation, including through digitization.

Examining the participation within the communities themselves, four interwoven factors appear to be critical: leadership, religious beliefs, respect for Lanna cultural heritage and social values emphasizing social harmony. There was a strong sense of the need for a strong leadership figure with a vision of the importance of PLMs. Participation in PLM-related activity was also driven by Buddhist beliefs. PLMs were considered holy objects and it was believed that merit could be earned in participating in activities related to them. PLMs also had strong cultural associations and, along with other forms of traditional knowledge, were being revived out of a strong regional interest in traditional cultural heritage. Social values in respect to authority and community (themselves shaped by Buddhism) appeared to play an important role in explaining the response to leadership. An attraction to respect for leadership figures is combined with a strong sense of community and desire for harmonious social relations.

Nevertheless, community involvement was found among a minority of citizens. A major barrier to further engagement was the lack of ability to read or write the script. Relatively few local people could read or write the Lanna Tham script. Digitization did not always involve transliteration and translation, and digital objects were regarded as inaccessible anyway. More fundamentally, there is a pattern among young people of turning away from Buddhism and traditional social values, which poses a long-term challenge to the relevance of PLMs. In this context, the efforts being made at Ban Saluang Nai to involve young people are particularly significant.

A model of community-driven care for PLMs

Based on the key elements identified in the three villages, we propose a model of the key components for community-driven care of Lanna PLMs (see Figure 4). This centres on the community, in contrast to the model presented in Jarusawat et al. (2018), which was more of a model of how external partners try to create and sustain local participation. In the new model, it is recognized that the energy behind sustained care lies in the community itself.

Community involvement in managing PLMs was underpinned by religious beliefs, especially the Buddhist notion of merit, which is believed to be received by doing good deeds. This belief constitutes a strong connection that binds people in a community together, and so, when associated with PLMs, is a powerful cohesive force. But it is quite abstract and some effort has to be made to associate it with PLMs. It is further linked to the value placed on cultural heritage and community values emphasizing harmony, but these seem to be eroding, especially among young people.

Thinking about the development of momentum behind PLMs as a process, in the early stages, participation by the community is usually shaped by a leader, who brings vision, passion and dedication towards the PLMs. In all three cases, this was critical, although the individual or group offering leadership was different in each example. It requires time. Responding to this leadership, people in the community gather together for activities or events that can help move the community up a series of steps towards the potential for sustainability. A sense of awareness and ownership starts to be established, and the community members begin to recognize the value of PLMs. Community involvement in the activities or events related to the PLMs develops, at the basic level through regular cleaning activities among members, female members making woven cloth to cover the PLMs, taking donations for activities or management related to the PLMs. This has the potential to develop into more advanced-level, in-depth activities, such as initiatives like the Tak Tham ceremony, efforts to teach the Lanna script and the local guide project at Ban Saluang Nai. Ongoing participation is the key to sustaining the existence of PLMs in the community. Mangkhang (2017) has suggested that effective leaders in the Thai context attempt to create learning communities. This suggestion chimes with the findings of this study.

External agencies such as universities, research centres and libraries with expertise in PLMs play a vital role by promoting general awareness, providing training on how to clean manuscripts, cataloguing and publishing PLMs, studying the PLMs, and returning some of their newly acquired understanding to the community. External agencies help smooth community-based participation. Problems for the community, such as lack of funding and lack of technical knowledge to manage PLMs appropriately, are solved. This has to be premised on mutual respect, given that the motives for the different parties are somewhat different. The communities' motivation focused on religion, whereas that of the external partners was mostly cultural. However, long-term collaboration remains challenging. It takes time to build up trust. External partners tend to work with one village on a particular project then move on to another village when it has been completed.

In the communities' view, external financial support was needed to establish PLM learning centres organized by the community. Furthermore, it was thought that there was the potential for the content of the PLMs to be presented in adaptations such as songs, art pieces, comics, photographs and literature. Services and activities for the younger generation, such as handwriting-practice classes, Lanna Tham script classes and reading PLMs (and other ancient types of text, such as Pub Sa – books made from mulberry bark), would also be needed in the future.

Although digitization figures heavily in the plans of external partners, it does not seem directly relevant to how community engagement could be accomplished. For the local communities, it was engagement with the material objects that triggered their interest. They often did not have the technology to access digital versions and, of course, they could not read the scripts.

The model is not intended to suggest that there is a single pathway that would fit all communities. The overall guidelines for sustainable preservation of PLMs are suggested to the communities as an open-ended path; each community is able to choose its own way and apply the model to its own situation.

Conclusion

This article has explored different ways that local communities in northern Thailand are becoming involved in managing PLMs as valuable religious and cultural objects. Three cases were examined in depth and the differences and similarities in how they had developed analysed. A common element was the basis of motivation in religious beliefs, especially relating to earning merit. This was reinforced by growing interest in cultural heritage. Leadership, although coming from different sources in the three cases, was also important in stimulating and directing interest. Expert external partners also played a critical role in terms of training people to clean PLMs and raising understanding and awareness. Involvement was limited by the loss of the ability to read and write the Lanna Tham script. Building on this analysis, a model of sustainable community involvement in PLM management is proposed.

The research reveals some intriguing aspects that point to the need for further exploration. Given the apparent importance of leadership but the differing paths taken by the communities involved, it would be intriguing to explore local experiences of leadership for leaders and those who follow them, in order to establish commonality in what leadership means in this context. It would also be useful to explore the emerging nature of the learning communities created around PLMs. Another important aspect is the way in which local traditions are both revived and reinvented. PLMs are part of a wider revival of Lanna culture; at the same time, there are aspects, such as the increasing involvement of women, that reveal the extent to which this revival involves cultural change too. Understanding how this works would be important to sustainable community involvement. The current study examined three cases where the community was actively engaged with PLMs. A fuller understanding of why other communities engage far less is needed. For example, is this simply linked to the strength of Buddhist belief in the locality and how far can leadership work in such a context? This work would help further develop the model presented here so that it could be applied in contexts where the community is currently less committed but where some of the underlying favourable conditions exist.

There is clearly a need for libraries, archives and other heritage institutions in the region to become involved and to include local people in initiatives to describe and preserve PLMs. Ultimately, it is local communities that own the PLMs. Local communities continue to value them for religious and cultural reasons. The existing practices of sharing the information learned in the process of cataloguing and digitization are valuable. Working with local leaders and communities to build interest and awareness is important if, ultimately, it is community leaders who play the key role. Digitization, while of value to preserve PLMs, does not necessarily make them more accessible to local people. Transliteration and translation might be given greater emphasis because a major barrier is the lack of a widespread ability to read them. Presenting material from PLMs in alternative forms such as comic books, as imagined at Pat Tum Don, would also help widen understanding of their relevance, as would integrating them into other cultural initiatives such as wisdom classrooms, especially those directed towards the young, and modelled at Ban Saluang Nai. It is important that long-term relationships develop between local communities and external agencies.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Preservation and conservation of indigenous manuscripts

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Abstract
This study is an endeavour to investigate the preservation and conservation status of the heritage of indigenous manuscripts in the Central Library at the Jain Vishva Bharati Institute (Deemed University), Rajasthan, India, that are unknown to the scholarly world. A survey of the manuscripts was carried out to investigate their physical status. A structured interview with nine staff members from the manuscripts section was conducted to obtain information regarding the manuscript collections and current preservation and conservation techniques employed. The findings reveal that the overall preservation and conservation techniques used in the library were found to be satisfactory according to the standard operating procedures of the National Mission for Manuscripts. The study also provides an understanding of the nature of the manuscript collections and the preservation and conservation techniques employed with the manuscripts.

Keywords
Preservation, conservation, manuscripts, cultural heritage, collection management

Introduction

The cultural heritage contained in indigenous manuscripts has its own importance and, intangibly or tangibly, provides a common connection to beliefs and an understanding of the social values of past societies and how our forebears survived. The preservation and conservation of indigenous manuscripts is both a cultural necessity and a central responsibility. The rich wealth of the manuscripts of the nation should therefore be preserved, conserved and digitized to make them accessible to present and successive generations, and disseminate the knowledge contained therein.

India has a vast collection of manuscripts that represent the cumulative knowledge, values, experiences and practices of the cultural heritage of past societies. This cultural heritage gives a sense of unity and belonging to a particular group, and provides links to the norms, customs and traditions of past societies. The information related to the history, religion, art, language and literature of past Indians contained in manuscripts represents the past and is a bridge to the present.

The literary heritage of India covers many fields of intangible and tangible knowledge, and there is a particular abundance of religious and philosophical texts. The ancient inscriptions in Sanskrit and Prakrit that exist across the different regions of India constitute a particular branch of Indian literature, and manuscript collections in diverse languages, calligraphies and materials, with illustrations and illuminations, can be found across India.

Manuscripts and their features

For the present study, the National Mission for Manuscripts' (2016) definition of a manuscript has been used: 'A manuscript is a handwritten composition of paper, book, cloth, metal, palm leaf or any other material dating back at least seventy-five years that has significant, scientific, historical or aesthetic value'.

The Antiquities and Art Treasures Act of 1972, which stipulates the regulations for export trade in antiquities and art treasures, defines a manuscript as 'any manuscript, record or other document which is of scientific, historical, literary or aesthetic

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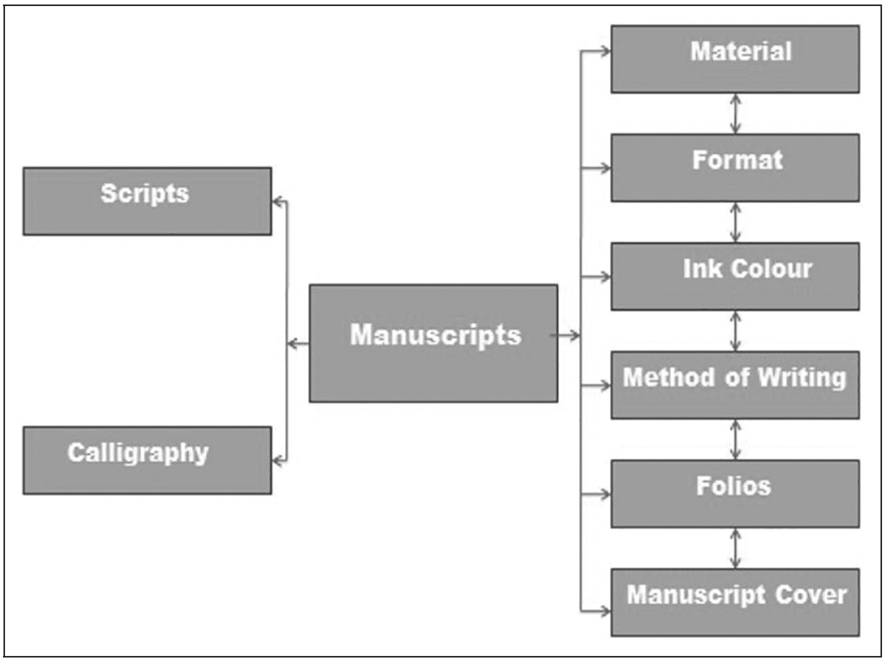

Figure 1. Typical features of Indian manuscripts.

value and which has been in existence for not less than seventy-five years' (see Gaur and Chakraborty, 2009).[1]

The main features of Indian manuscripts are their material, format and the ink used (see Figure 1).

Material

Two types of material were normally used for manuscripts: palm leaf and paper. Cloth was also used for items such as large paintings or covers. Paper made from the plant fibres of cotton, bamboo or wood was a regular material used for manuscripts. The paper comes in a large range of colours, including ochre, cream and yellow. The standard size of the paper is 26 cm x 11 cm, but there are also variations in size.

Format

The manuscripts are in a traditional rectangular landscape format, with the long sides at the top and bottom.

Ink colour

Various ink colours from natural resources were used for manuscripts. Black was the normal colour for writing text. In the widest sense of the word, red ink was used for ornamentation. Some ornamental manuscripts also have silver and gold ink.

Method of writing

A kind of pen was used for writing on paper manuscripts.

Scripts

Most of the manuscripts were written in native scripts and read from left to right. However, some of the letters and numbers are in a specific format.

Folios

The traditional format of unbound manuscripts is called *pothi*. Traditional manuscripts are made up of loose folios with two sides – recto (r) and verso (v). The reader first reads the recto side and then turns over the folio to read the verso side.

Manuscript covers

Traditional manuscript covers are made of paper, cardboard or wood and come in two parts – one at the beginning and one at the end.

Calligraphy

The scripts are large and well formed to distinguish them from ordinary handwriting.

Nature of manuscript collections in India

According to the National Mission for Manuscripts' (2021) 'Basic minimum standards for the conservation of manuscripts', there are manuscript collections

Table 1. Nature of manuscripts collection in India.

Nature of manuscript collection	Description
Large	10,000+ manuscript bundles
Medium	2000–10,000 manuscript bundles
Small	0–2000 manuscript bundles
Mixed	Various types of manuscripts
Exclusive	Collections predominantly of only one particular type of manuscript
Sacred	Custodianship of manuscripts in religious institutions, monasteries and homes considered sacred by their owners
Academic	Manuscripts housed in university libraries
Ritual worship	Manuscripts related to sacred texts of a particular sect or religion
Private	Custodianship of manuscripts in private institutions in certain regions of India
Trusts	Custodianship of manuscripts governed by trusts
Museums	Museums in India have a wealth of well-selected manuscripts
Research institutions	Custodianship of manuscripts in various societies and oriental research institutions
Archives	The archives of India have a large number of manuscripts that relate essentially to government records

that differ in terms of type of collection, nature of ownership and administration, for example, in different parts of India. The nature of these different manuscript collections is shown in Table 1.

Factors of deterioration

In order to comprehend the concept of preservation and conservation, it is important to understand the basic factors of deterioration. According to NMM guidelines (2021), these factors can be categorized as follows:

- Human factors: the biggest danger to manuscript collections is human factors, especially professional apathy and carelessness;
- Natural factors: these include fire, water, natural disasters, insect attacks, microbiological attacks, dust, environmental pollution and relative humidity;
- Inherent factors: the ways in which the manuscript's material was prepared and the ink or paint was applied can also be a danger to manuscript preservation and conservation.

Preservation and conservation

According to Adcock (1998), preservation includes all the managerial and financial considerations – such as storage and accommodation provisions, staffing levels, policies, techniques and methods – involved in preserving library and archival material, and the information contained therein. Preservation can be defined as all the managerial, technical and financial considerations that are undertaken to prevent deterioration and extend the useful life of (collection) materials to ensure their continued availability (Eden, 1998).

The American Library Association (1992) states that conservation is the maintenance of each item in a collection in a usable condition. According to Adcock (1998), conservation is the specific practices used to slow the deterioration and prolong the life of an object by directly intervening in its physical or chemical make-up. According to NMM guidelines (2021) defines conservation as any direct or indirect action on a damaged or undamaged manuscript or collection of manuscripts aimed at enhancing the life of the manuscript(s). Conservation may be:

- Preventive conservation: any direct or indirect action on a damaged or undamaged manuscript or collection of manuscripts aimed at enhancing the life of the manuscript(s) by reducing future risks of deterioration;
- Curative conservation: any direct action on a damaged manuscript or collection of manuscripts aimed at stopping active deterioration of the manuscript(s);
- Restoration: any direct action on a damaged manuscript aimed at improving the visual aspect of the manuscript.

The terms 'preservation' and 'conservation' are sometimes used interchangeably. Particularly in the context of the conservation profession, preservation is considered a subdiscipline within the field of conservation. In brief, preservation deals with the management aspects of the maintenance of manuscripts, whereas conservation focuses on current practices to keep manuscripts in a usable condition. Manuscripts represent the collective wisdom and vast experience of generations. Therefore, modern practices of preservation and conservation are important.

Preservation and conservation methods in India

Indigenous methods

India has a history of using various indigenous methods to preserve its manuscripts against decay. Wrapping manuscripts in red or yellow cotton cloth is very common in India. In terms of using herbs and natural products as insect repellents, a combination of *Acorus calmus*, camphor, cinnamon, cumin, cloves and pepper has been used in many parts of India. The dried leaves of the neem tree are used to combat booklice. Turmeric is also used as an insect repellent. In southern India, fumes from burning the ajowan plant have been used as a fungicide.

Modern methods

With the advent of new technologies and suitable chemicals in the field of preservation and conservation, the life of manuscripts has been enhanced, but the use of chemicals is somewhat drastic and can be toxic. Microfilms, microfiches and digitization are the latest advanced technologies that are being adopted in many libraries.

Scope of the study

In India, research on the preservation and conservation of manuscripts has been conducted in various regions. The need for more relevant information has prompted this article, showing how indigenous manuscripts have been preserved and conserved at the Jain Vishva Bharati Institute (Deemed University) in Rajasthan, India. The Institute was established in 1991 in the city of Ladnun by Gurudev Acharya (His Holiness) Shri Tulsi of the Svetambar Terapanth Sect. Gurudev Acharya Shri Tulsi was its first constitutional Anushasta (moral and spiritual guide) and was followed by Acharya (His Holiness) Shri Mahaprajna. Acharya (His Holiness) Shri Mahashraman is the present Anushasta. The Institute is a research-oriented centre of higher education and places great emphasis on peace and human rights studies and allied subjects in the areas of ethics, non-violence, comparative religion and philosophy, and environmental ethics (JVBI, 2021).

Review of related literature

The literature on the preservation and conservation of manuscripts is sparse. This section highlights studies that have been conducted in this field.

Lone et al., 2021 investigated the preservation status of rare documents in Srinagar capital of Jammu and Kashmir. The job was carried out in around 111 individuals, religious institutions and private libraries having rare resources. The study revealed that the traditional preservation methods have been quite fruitful for rare documents available with them. Baquee and Raza (2020) investigated the types of manuscripts, users and techniques involved in the preservation and conservation of manuscripts at the Aligarh Muslim University library.

Zhou et al. (2021) extracted keywords as data sources from the China National Knowledge Infrastructure, and analysed the evolutionary trends of 'documentary heritage preservation and conservation research in China'.

The performance of preservation activities was minimal and disagreements were recorded when identifying the digital curation practices in 23 institutional repositories in south India (Shajitha, 2020). Wilson (2017) reviews the open archival information system reference model, and outlines the prescriptive model to evaluate the calibre of digital preservation efforts. The different preservation and conservation techniques used in selected libraries in New Delhi, India, were not very effective (Yadav and Kumar, 2020).

Rachman (2017) examines the traditional methods used in Indonesia to conserve manuscripts and the philosophical viewpoints that underlie these methods. Nurdin (2012) describes the development and scope of the collection at the Aceh Museum, and the steps taken by the museum to raise public awareness of the value of manuscripts as a tangible legacy of a great intellectual heritage. Hussein-Moustafa (2015) reveals that libraries and archives in the Middle East and North Africa have insufficient plans to establish and implement protocols for the preservation and conservation of their priceless manuscripts. Majumdar (2005) discusses the whole gamut of issues surrounding the initiatives taken by the Government of India for the preservation and conservation of India's literary heritage.

Singh (2012) considers the initiatives taken by the Government of India with regard to the digital preservation of cultural heritage manuscripts. Minicka (2008) shares the experiences of the Timbuktu Rare Manuscripts Project in the preservation and conservation of manuscripts in Timbuktu. Narang and Singh (2014)

Table 2. Manuscripts in different subjects.

Classification	Number of manuscripts	%	Number of folios	%
Aagam (Canonical Literature)	1638	26.81	124,516	64.25
Jain Darshan (Jain Philosophy)	777	12.72	12,573	6.49
Stavana/Stotra (Eulogy)	651	10.66	3965	2.05
Updesha (Preaching)	586	9.59	7540	3.89
Kathaayen (Story)	534	8.74	6829	3.52
Darshan (Philosophy)	591	9.67	8839	4.56
Ayurveda	279	4.57	5613	2.89
Vyakaran (Grammar)	181	2.96	7481	3.86
Jyotish-Shaastra (Astrology)	378	6.19	7312	3.77
Kosh (Dictionary)	95	1.56	3443	1.78
Mantra-Tantra (The Occult)	298	4.88	2255	1.16
Aachaar (Ethics)	73	1.19	2250	1.16
Khagol-Shaastra (Astronomy)	7	0.11	940	0.49
Vedic Ganit (Mathematics)	21	0.34	210	0.11
Kaam-Shaastra (Concupiscence)	1	0.01	46	0.02
Total	6110	100	193,812	100

highlight different methods for the preservation and conservation of fragile rare scriptures. Further, by analysing the factors involved in the deterioration of the manuscripts in the Sikh Reference Library at the Golden Temple of Amritsar, they emphasize that by using appropriate expertise, deterioration can be reduced to lower levels. Devanathan (2012) highlights that dried *ashwagandha* powder, *Piper nigrum* oil, custard apple seed powder, and a mixture of leaves and *Azadirachta indica* oil are natural ways to preserve manuscripts.

Bansode (2008) reveals that digitization is a solution for the preservation of and access to rare documents. The digitization of manuscripts is a time-consuming and difficult job due to the fragility and discolouration of manuscripts (Londhe et al., 2011). Singh and Singh (2020) stress the need for the digitization of manuscripts to preserve them for future generations. Li and Niu (2010) provide a theoretical guide for preserving ancient books in China. Ahmed et al. (2018) evaluate the effectiveness of zinc sulphate as an alternative preservative technique to protect old manuscripts. Library professionals have a responsibility to take proper care of manuscripts and minimize deterioration caused by various environmental and biochemical factors (Mishra, 2017).

The review of the related literature has helped to identify the best practices adopted by libraries in the preservation and conservation of manuscripts. From the literature review, it has been concluded that the preventive and curative treatment of manuscripts, digitization and microfilming are effective measures to ensure the preservation of, access to and the enhancement of the life of original manuscripts.

Objectives of the study

This study had three objectives: (1) to find out the kinds of manuscripts available in the library; (2) to reveal the techniques being followed for the preservation and conservation of the manuscripts; and (3) to find out the kinds of records available for documentation.

Research methodology

This qualitative study used a survey of the manuscripts to investigate their physical status and structured interviews with nine staff at the Jain Vishva Bharati Institute. A physical survey of manuscript collections is a vital tool in assessing the extent of deterioration in collections and then enabling the planning of appropriate conservation programmes (Brown et al., 2020). The observation method was also applied among the staff. A questionnaire was constructed and distributed among the nine library staff that sought to answer the research questions: (1) What kinds of manuscripts are available in the library? (2) What preservation and conservation techniques are being followed for manuscripts? And (3) What are the main factors that cause the deterioration of manuscripts? All of the questionnaires were completed and returned, resulting in a 100% response rate (See Appendix 1).

Results and discussion

Manuscripts in different subjects

The manuscripts contain centuries of accrued knowledge and are invaluable sources of information. Table 2 lists the total number of manuscripts ($N =$

Table 3. Manuscripts in different languages.

Languages	Number of manuscripts	%	Number of folios	%
Prakrit	1697	27.77	124,270	64.12
Sanskrit	1497	24.50	30,336	15.65
Māru-Gurjara	1642	26.87	18,016	9.29
Rajasthani	536	8.77	4652	2.40
Old Hindi	103	1.69	1432	0.74
Apabhraṃśa	8	0.13	157	0.08
Persian	1	0.02	18	0.01
Others (mix)	626	10.25	14,931	7.71
Total	6110	100	193,812	100

Table 4. Manuscripts in different forms.

Forms	Number of manuscripts	%	Number of folios	%
Paper	6110	100	193,812	100
Other (palm, parchment, etc.)	–	–	–	–
Total	6110	100	193,812	100

6110) in different subjects at the Jain Vishva Bharati Institute. The 6110 manuscripts in different subjects and languages are in 193,812 folios. The whole collection has been classified into 15 major subject areas, and the data shows that the majority of the manuscripts are related to Aagam (Canonical Literature), accounting for 26.81% (n = 1638) of the manuscripts and 64.25% (n = 124,516) of the folios. Other precious manuscripts are available on Jain Darshan (Jain Philosophy; 12.72%, n = 777), Stavana/Stotra (Eulogy; 10.66%, n = 651), Updesha (Preaching; 9.59%, n = 586), Kathaayen (Story; 8.74%, n = 534), Darshan (Philosophy; 9.67%, n = 591), Ayurveda (4.57%, n = 279), Jyotish-Shaastra (Astrology; 6.19%, n = 378) and Mantra-Tantra (The Occult; 4.88%, n = 298), among others (see Table 2).

Manuscripts in different languages

Manuscript collections in various languages display the Holy Scriptures, covering different faiths such as Vedic, Puranic and Jainism, and dating back to the 7th century BC. Texts in the Rajasthani, Marathi and Gujarati dialects and other religious literary texts have found a place in the collections. The data identifies seven major languages, and it is evident that the majority of the manuscripts are in Prakrit (27.77%, n = 1697), accounting for 64.12% (n = 124,270) of the folios. Manuscripts in Sanskrit constitute 24.50% (n = 1497) of the manuscripts, Māru-Gurjara 26.87% (n = 1642), Rajasthani 8.77% (n = 536), Old Hindi 1.69% (n = 103), Apabhraṃśa 0.13% (n = 8) and a rare Persian language 0.02% (n = 1). Manuscripts in other languages or a mix of languages account for 10.25% (n = 626) of the manuscripts and 7.71% (n = 14,931) of the folios (see Table 3).

Manuscripts in different forms

A manuscript is always more than just its textual information, as it is a historical document. The availability of paper made it easier for manuscripts to become important vehicles for transmitting knowledge. Manuscripts made of handmade paper were kept in bundles, and the sheaves of folios were then kept between wooden boards and wrapped in cloth. A large number of manuscripts also comprise folios of modern manufactured paper, either loose or bound together (see Table 4).

Duration of employing preservation and conservation techniques

The preservation and conservation techniques that are carried out depend on the type of manuscript. The staff were asked how long they had been employing the techniques, and it was revealed that the preservation and conservation techniques had been used for between 11 and 15 years.

Preservation and conservation techniques

It is important that appropriate preservation and conservation techniques are applied to maintain the integrity of manuscripts and the information contained therein (see Figure 2).

It is evident that washing (general and solvents), pH testing, fumigation (gaseous treatment of materials), de-

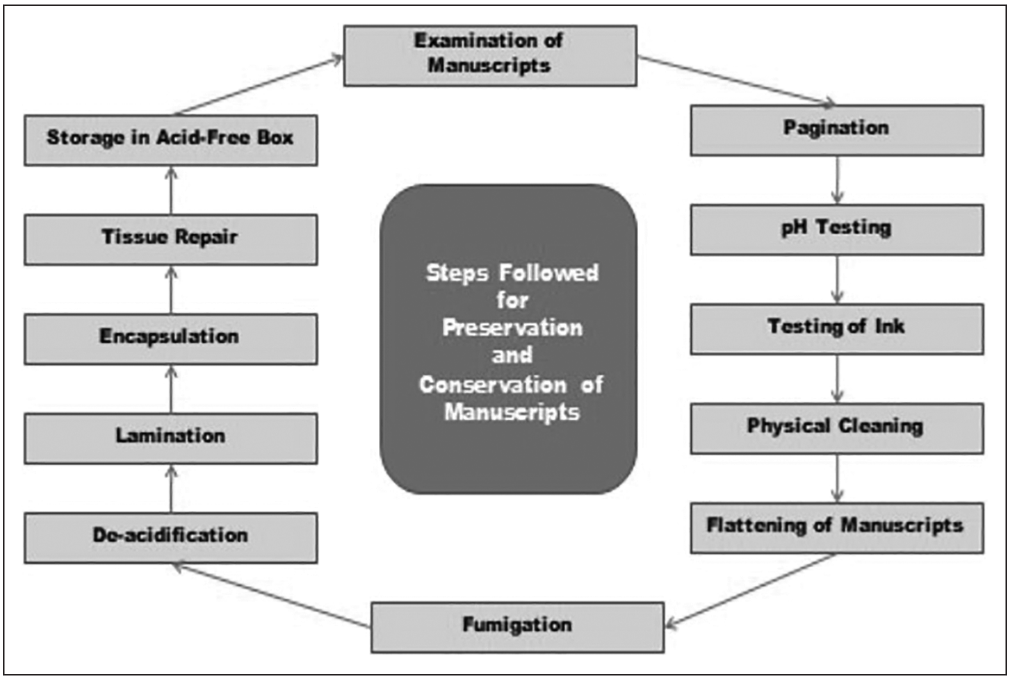

Figure 2. Steps followed for the preservation and conservation of manuscripts.

Table 5. Preservation and conservation techniques.

Techniques	Yes/No
Washing	Yes
pH testing	Yes
Fumigation	Yes
De-acidification	Yes
Lamination	Yes
Encapsulation	Yes
Restoration	Yes
Microfilm	No
Microfiche	No

acidification (a technical procedure to neutralize acidity effects on manuscripts), lamination (protecting paper by covering both sides with transparent polythene sheets), encapsulation (a safe and permanent method for preserving precious one-sheet documents) and restoration were common preservation and conservation techniques employed with the manuscripts (Table 5).

Baquee and Raza (2020) explore the use of most of these techniques at the Aligarh Muslim University. The Institute library has adopted chiffon and country-made tissue paper (with acid-free, waxy and oily constituents) for lamination and polyester film for the encapsulation of manuscripts.

Remedial conservation and preventive measures

Silverfish, cockroaches, booklice, crickets and termites are the major biological agents that cause extensive damage to paper manuscripts. Naphthalene bricks, neem leaves and the spraying of insecticides may be used as insect repellents. It is evident that prevention is better than a cure. Therefore, there should be the regular cleaning of manuscripts with a soft brush or vacuum cleaner, and manuscript folios should be wrapped in acid-free handmade paper and covered with a red cloth to protect against dust and insects. It suggests that the full pasting should be done by using dextrin or CMC paste and sizing should be performed by using gelatine, methyl methacrylate, paralite and methyl cellulose. The remedial conservation and preventive measures for hand-written manuscripts observed in the library are listed in Table 6.

Chemicals

The care of manuscripts is a major concern and efforts are being made to protect them against different deterioration factors. Most of the chemicals that are used to counter insect attacks are relatively drastic and toxic. Which chemicals are used to preserve manuscripts is determined by experience and knowledge. The staff said that different chemicals have been used for the preservation and conservation of manuscripts: thymol and ortho-phenylphenol as antifungal agents; borax powder as an insecticide; gelatine, Melinex, eraser powder, seashell lime, silica gel, Paraloid B-72 granules and glucal-starch paste as conservation materials; and methanol, ethanol, toluene and trichloroethylene as solvents (Table 7).

Table 6. Remedial conservation and preservation measures used for hand-written manuscripts.

Conservation measures	Yes/No
Complete documentation, including photocopying of manuscripts	Yes
Testing of inks and colours for bleeding in alcohol and water (if inks and colours are bleeding, no treatment using water or alcohol-based constituents)	Yes
Dry cleaning using soft brushes, scrubbers, vinyl eraser powder, etc.	Yes
Flattening of manuscripts	Yes
Mending using tissue paper (acid-free paper with long fibres) and starch (gluten-free) paste	Yes
Lining/lamination	Yes
Binding	Yes
Storage in acid-free boxes	Yes
Preservation measures	
Keeping manuscripts away from direct contact with water, oil, dust, etc.	Yes
Maintaining of relative humidity levels between 40% and 60%	Yes
Regular ventilation using fans and opening of windows	Yes
Use of silica gel	Yes
Integrated pest management controls	Yes

Table 7. Chemicals used for preservation and conservation.

Chemicals	Application	Yes/No
Thymol	Antifungal agent	Yes
Ortho-phenylphenol	Antifungal agent	Yes
Borax powder	Insecticide	Yes
Gelatine	Conservation material	Yes
Melinex	Conservation material	Yes
Eraser powder	Conservation material	Yes
Seashell lime	Conservation material	Yes
Silica gel	Conservation material	Yes
Paraloid B-72 granules	Conservation material	Yes
Glucal-starch paste	Conservation material	Yes
Methanol	Solvent	Yes
Ethanol	Solvent	Yes
Toluene	Solvent	Yes
Trichloroethylene	Solvent	Yes

Materials

The library has set up a work-oriented conservation centre, which is equipped with modern, sophisticated equipment and materials for the care of the indigenous manuscript collections. It has been claimed that the staff reported that 10 basic materials are used for the preservation and conservation of manuscripts (Table 8).

Documentation records

Manuscripts are often scattered among known and unknown collections. India's wealth of manuscripts should be documented in a manner that provides a reference source to aid scholars and researchers. This study revealed that detailed documentation records for the manuscripts were being maintained. Manuscripts for which preservation and conservation work has been completed have been labelled. The manuscript records include accession registers, location registers, catalogues, treatment records and conservation files (Table 9).

Table 8. Materials used for preservation and conservation.

Materials	Yes/No
Lens tissue paper	Yes
Banana tissue paper	Yes
Nepalese tissue paper	Yes
Blotting paper	Yes
Handmade paper	Yes
Polyester /Melinex polythene	Yes
Acid-free board	Yes
Chiffon	Yes
Crimplene	Yes
Muslin	Yes

Digital media

With the advancement of information technologies, it has become necessary to store data in digital formats. The study reveals that compact discs (CDs), DVDs, USB flash drives and external hard discs have been adopted for short-term data storage (Table 10).

Physical conditions

This qualitative study surveyed the manuscripts at the Jain Vishva Bharati Institute to investigate their physical condition. For all the manuscript collections, the library claimed that most of the resources were in good condition, but some needed more attention. As some of the collections are fragile and brittle, from a preservation and conservation point of view, they require immediate attention (Table 11).

Table 9. Documentation records.

Documentation records	Yes/No
Labelling manuscripts	Yes
Accession register	Yes
Location register	Yes
Catalogue	Yes
Treatment record	Yes
Conservation file	Yes

Table 10. Digital media used for preservation and conservation.

Digital media	Yes/No
Short-term storage	
CD/DVD	Yes
USB flash drive	Yes
External hard disc	Yes
Long-term storage	
Recordable discs with gold metal reflective layer	No
Microfilming of digital data	No

Table 11. Physical conditions.

Category	Yes/No
Good	Yes[a]
Fragile	Yes[a]
Brittle	Yes[a]
Fungus-affected	No
Worm-eaten	No

[a]Some manuscripts need more attention.

Shelf cleaning

The library staff reported that shelf cleaning was carried out on a monthly basis. To prolong the life of the indigenous manuscripts, the frequency of shelf cleaning needs to be changed to weekly so that a clean environment can be maintained.

Floor cleaning

Periodic checks and proper housekeeping help manuscript collections to remain in good condition for a longer period of time (Jeyaraj, 2010). Such housekeeping operations were reported in the library and performed on a daily basis, which is good in terms of preservation criteria.

Humidity control methods

Humidity may damage susceptible paper manuscripts. The library has adopted various ways and means to check humidity levels. Lone et al. (2021) report on humidity control in their study of private libraries and religious institutions in Jammu and Kashmir, India. It is noteworthy stating that air conditioning, fans and exhaust fans facility exist in the institute's library for humidity control. It should be noted that air conditioning by itself only controls temperature, and not relative humidity. Air conditioning that switches on during the day and then off at night may cause more damage than steady temperature and relative humidity levels. Therefore, silica gel is most effective for small, confined spaces. Circulating the air (by using fans, for example) is useful in conditions of high humidity to prevent the growth of mould (Table 12).

Table 12. Humidity control methods.

Method	Yes/No
Air conditioning	Yes
Fans	Yes
Exhaust fans	Yes
Silica gel	Yes

Checklist against the 'Basic minimum standards for the conservation of manuscripts'

The National Mission for Manuscripts, with its mandate to identify, document, preserve, conserve and make accessible the vast wealth of manuscripts of India, has established a Manuscript Conservation Centre at the Central Library at the Jain Vishva Bharati Institute. Therefore, a checklist has been made against the 'Basic minimum standards for the conservation of manuscripts' (National Mission for Manuscripts, 2021). It reveals that the physical, chemical and environmental factors have been maintained in accordance with the guidelines. However, from a preservation and conservation point of view, ventilation and dust factors require more attention to safeguard the valuable manuscript collections (Table 13).

Digital preservation techniques

Digital preservation is the management of information and involves processes and activities to ensure that continued access to information exists in a digital form. Digital preservation aims for the long-term and error-free storage of digital information. Precisely, the implementation of digital preservation of manuscripts in terms of digital conversion of non-digital source materials are needed for the following reasons:

- To maintain the cultural and historical value of a nation's heritage;
- To preserve manuscripts in a long-lasting medium;

Table 13. Checklist against the 'Basic minimum standards for the conservation of manuscripts'.

Standard	Criteria	Yes/No	Criteria	Yes/No
Manuscript conservation section	Functional	Yes	Not functional	No
Documentation of manuscript collection	Up to date	Yes	Ongoing	Yes
Boxes (damaged/disordered)	Satisfactory	Yes	Needs attention	No
Cupboards (damaged/disordered)	Satisfactory	Yes	Needs attention	No
Shelves (damaged/disordered)	Satisfactory	Yes	Needs attention	No
Ventilation	Good	No	Needs attention	Yes
Dust	Satisfactory	Yes	Needs attention	Yes
Fungus	Satisfactory	Yes	Needs attention	No
Insects	Satisfactory	Yes	Needs attention	No
Rats	Satisfactory	Yes	Needs attention	No

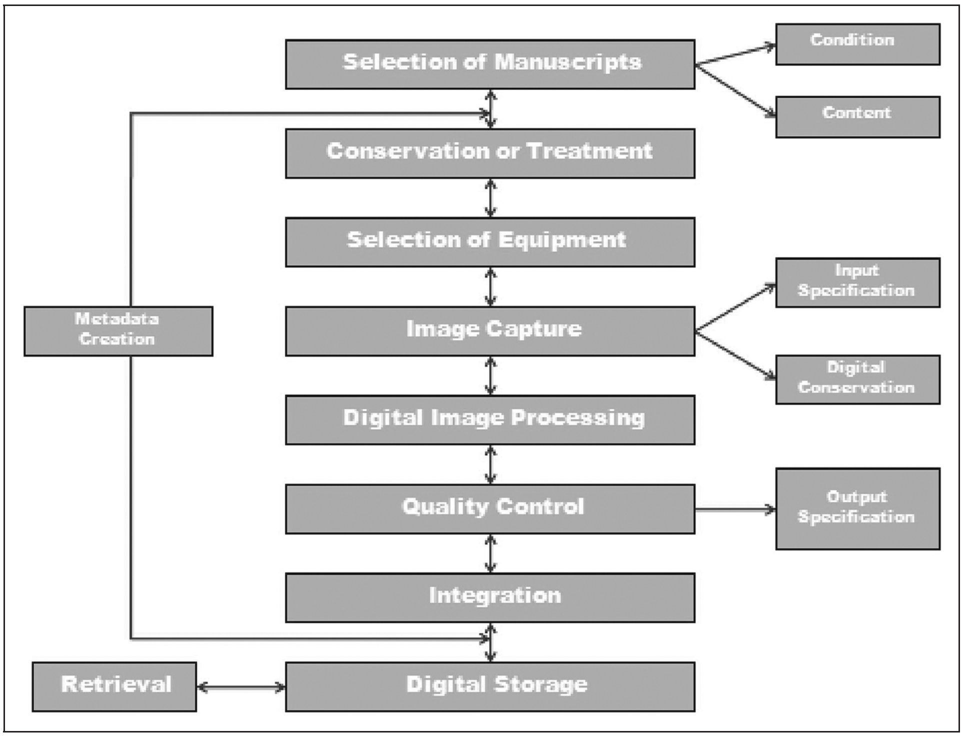

Figure 3. Steps followed for digital preservation of manuscripts.

- To reduce the handling of frequently used original manuscripts;
- To promote round-the-clock access anytime, anywhere;
- To facilitate multiple access; and
- To generate multiple copies of manuscripts.

Digitization means to acquire, organize, convert, store, process, standardize and disseminate information in a digital format. The digitization of manuscripts enhances access, facilitates new forms of access and reduces handling. The steps involved in the digitization of manuscripts are shown in Figure 3. From the results of the study, it is evident that the selection of manuscripts based on their content or condition, conservation or treatment, the selection of equipment, image capture, digital image processing, quality control, integration, metadata creation, digital storage on short- or long-term storage media, and retrieval in a digital format are the digital preservation techniques followed by the Jain Vishva Bharati Institute's library for the digitization of the Jain manuscript collections.

Conclusion

The primary challenge, based on this study, is to create awareness of the preservation and conservation techniques that are being followed in the library, and to implement advanced methodologies. Manuscripts represent a symbolic presence, which integrates the history, traditions and culture of a nation, and they are an irreplaceable source of pride for a nation. Manuscripts possess a universal value which can touch all people around the globe. The preservation and conservation of manuscripts has to be seen in a broader context, managing what has been inherited from the past and what will be handed over to future generations.

India's most precious and valuable gift to humanity is its manuscript heritage, and the Central Library at the Jain Vishva Bharati Institute is striving to contribute to the preservation and conservation of this heritage. The holding of precious manuscript collections has gained importance and also has financial benefits. It was also observed that due to the lack of trained staff and funding or grants from the government, various valuable manuscripts are in urgent need of conservation. It is recommended that the manuscripts should be digitized and made available on the Web to enable easy accessibility from any part of the world. In the present scenario, the library is not only a warehouse of knowledge, but also plays an important role in the preservation and conservation of, and access to, its stored documents (Olatokun, 2008). Preservation and conservation techniques enhance the life of library resources, especially in the case of manuscripts. The library should make these valuable cultural heritage resources accessible to users for their benefit. Therefore, the manuscripts should be preserved and conserved using appropriate methods. In terms of efficient access, a digital version of a manuscript is more convenient. However, as far as the preservation of manuscripts is concerned, microfilms, which ensure durability, are better than a digital version. Therefore, the preventive and curative treatment of manuscripts, digitization and microfilming should be used to ensure preservation and access. In future, repeating the study for different institutions or organizations would allow researchers to identify current practices of preservation and conservation techniques.

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Notes

1. The text of the Antiquities and Art Treasures Act, 1972, can be found at: https://legislative.gov.in/sites/default/files/A1972-52.pdf
2. See http://www.jvbi.ac.in

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Author biography

Sunil Tyagi is an Assistant Librarian at the Jain Vishva Bharati Institute (Deemed University), India. He has also served as a Senior Documentation and Publication Assistant at the Indian Pharmacopoeia Commission (Ministry of Health and Family Welfare). He completed his Bachelor and Master's degrees in Library and Information Science at Chaudhary Charan Singh University. He also passed the National Eligibility Test conducted by the University Grants Commission (Ministry of Education). His current research interests include bibliometrics, scientometrics and citation analysis. He has produced 37 research papers in reputed journals and 23 chapters in edited books and proceedings.

Appendix 1

Preservation and conservation of indigenous manuscripts

1. Your name: ______________________
   Title: ______________________
   Name of library: ______________________
   Phone number: ______________________
   Email: ______________________

2. Do you have manuscript collections in your library? Yes __________ No __________

3. How large are your manuscript collections?
   I. Paper ______________________
   II. Palm leaf ______________________
   III. Birch bark ______________________
   IV. Bamboo and wooden slips __________
   V. Parchment ______________________
   VI. Cloth ______________________
   VII. Vellum ______________________
   VIII. Other ______________________
   Total manuscript collection __________

4. Please list the manuscripts by subject or category in your collections:

   I. ______________________
   II. ______________________
   III. ______________________
   IV. ______________________
   V. ______________________
   VI. ______________________
   VII. ______________________
   VIII. ______________________
   IX. ______________________
   X. ______________________

(Use an extra sheet if needed)

5. Please list the manuscripts by major language in your collections:

I. ______________________
II. ______________________
III. ______________________
IV. ______________________
V. ______________________
VI. ______________________
VII. ______________________
VIII. ______________________
IX. ______________________
X. ______________________

(Use an extra sheet if needed)

6. Please describe the policy/guidelines governing the preservation and conservation of the manuscript collections:

____
____

7. For how long have you employed these preservation and conservation techniques?

I. 1–5 years ______________________
II. 6–10 years ______________________
III. 11–15 years ______________________
IV. 16–20 years ______________________
V. 21 years+ ______________________

8. Please briefly describe what preservation and conservation procedures are followed in order to maintain the integrity of manuscripts:

____
____
____
____
____
____
____
____
____
____

(Use an extra sheet if needed)

9. Do you apply the following preservation and conservation techniques?

I. Washing Yes [ ] No [ ]
II. pH testing Yes [ ] No [ ]
III. Fumigation Yes [ ] No [ ]
IV. De-acidification Yes [ ] No [ ]
V. Lamination Yes [ ] No [ ]
VI. Encapsulation Yes [ ] No [ ]
VII. Restoration Yes [ ] No [ ]
VIII. Microfilm Yes [ ] No [ ]
IX. Microfiche Yes [ ] No [ ]
X. Other, please specify ______________________

10. Please mention the different chemicals used for the preservation and conservation of manuscripts:

____
____
____
____
____

11. Do you use the following basic materials for the preservation and conservation of manuscripts?

I. Lens tissue paper Yes [ ] No [ ]
II. Banana tissue paper Yes [ ] No [ ]
III. Nepalese tissue paper Yes [ ] No [ ]
IV. Blotting paper Yes [ ] No [ ]
V. Handmade paper Yes [ ] No [ ]
VI. Polyester /Melinex polythene Yes [ ] No [ ]
VII. Acid-free board Yes [ ] No [ ]
VIII. Chiffon Yes [ ] No [ ]
IX. Crimplene Yes [ ] No [ ]
X. Muslin Yes [ ] No [ ]
XI. Other, please specify ______________________

12. Do you maintain the following documentation records for the manuscripts in your library?

I. Labelling manuscripts Yes [ ] No [ ]
II. Accession register Yes [ ] No [ ]
III. Location register Yes [ ] No [ ]
IV. Catalogue Yes [ ] No [ ]
V. Treatment record Yes [ ] No [ ]
VI. Conservation file Yes [ ] No [ ]
VII. Online catalogue Yes [ ] No [ ]
VIII. Other, please specify ______________________

13. Please specify the frequency of shelf cleaning:

I. Daily ______________________
II. Weekly ______________________
III. Fortnightly ______________________
IV. Monthly ______________________

14. Please specify the frequency of floor cleaning:

I. Daily ______________________
II. Weekly ______________________
III. Fortnightly ______________________
IV. Monthly ______________________

15. What digital media have been adopted for the data storage of manuscripts?

Short-term storage

I. CD/DVD Yes [ ] No [ ]
II. USB flash drive Yes [ ] No [ ]

III. External hard disc Yes [ ] No [ ]
IV. Other, please specify ________________

Long-term storage

I. Recordable discs with a gold metal reflective layer Yes [ ] No [ ]
II. Microfilming of digital data Yes [ ] No [ ]
III. Other, please specify _______ _______

16. What methods have been adopted for humidity control?
    I. Air conditioning Yes [ ] No [ ]
    II. Fans Yes [ ] No [ ]
    III. Exhaust fans Yes [ ] No [ ]
    IV. Silica gel Yes [ ] No [ ]
    V. Other, please specify ________________

17. Are your manuscripts digitized?
    Yes [ ] No [ ]

18. Please specify the digital preservation techniques applied for manuscripts:
    ____
    ____
    ____
    ____
    ____
    ____
    ____

19. Comments (if any):
    ____
    ____
    ____
    ____
    ____
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    ____
    ____
    ____
    ____

Date: _________ Name and signature__________

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Data science education programmes in Middle Eastern institutions: A survey study

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Abstract

In response to the current trends in dealing with data in academia, various research institutions and commercial entities around the world are building new programmes to fill the gaps in workforce demand in specific disciplines, including data curation, big data, data management, data science and data analytics. Thus, the aim of the present study was to reveal the reality of data science education in the Middle East and to determine the opportunities and challenges for teaching data science in the region. Thirteen countries in the Middle East were offering 48 data science programmes at the time of the study. The results reveal that these data science programmes significantly use the words 'data' and 'analytics' in their names. With regard to the academic affiliations of the data science programmes, the study found that they are offered in a variety of schools, especially computer science, information technology and business. Moreover, the study found that computer science is the dominant trend in the programmes. Data science programmes have a significant overlap with other programmes, especially statistics and computer science, because of the interdisciplinary nature of this field. Data science schools in the Middle East differ in terms of their programme titles, programme descriptions, course catalogues, curriculum structures and course objectives. Broadly, this study may be useful for those who are seeking to establish a data science programme or to strengthen data science curricula at both the undergraduate and postgraduate levels.

Keywords

Data science, data analytics, data science education, curriculum analysis, Middle East, Arabian Gulf countries

Introduction

Data in the new era

Humanity began collecting data on clay tablets thousands of years ago, and today we are dealing with a big data revolution. Big data is described by five important characteristics: velocity, volume, value, variety and veracity – in short, '[t]he 5 V's of big data' (Gutta, 2020). According to Werner Herzog: 'Today, if you would burn CDs [compact discs] of the worldwide data flow for one single day and stack them up to a pile, that pile would reach up to Mars and back' (Wilson and Turner, 2020: 147).

We are living in an era of big data and data science, where data is the main focus in our daily lives. Indeed, we are dealing with a large amount of data that is generated in all sectors of the community. Thus, the amount of data in different sectors has exploded and analysing big data has become a globally competitive field; this has also created a global trend towards studying data science and data analytics. In 2013, Louridas and Ebert revealed that there were approximately 1200 exabytes of data being produced annually. In July 2011, McKinsey & Company reported that:

> By 2018, the United States alone could face a shortage of 140000 to 190000 people with deep analytical skills as well as 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions. (Manyika et al., 2011)

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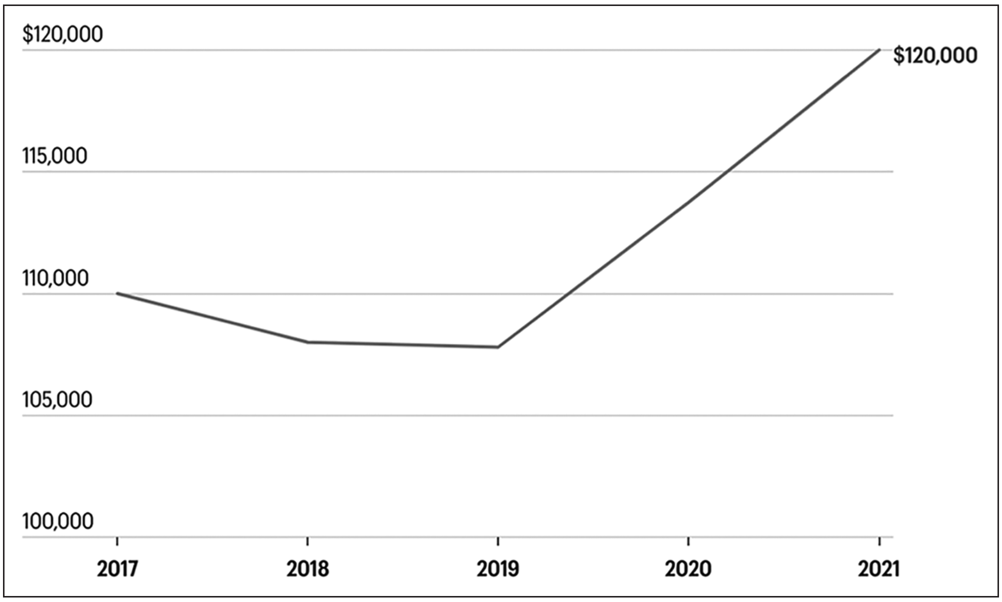

Figure 1. Median base salary for data scientists in 2022.
Source: Glassdoor (2022).

This means that the rest of the world needs to provide a huge number of data scientists and data analysts by establishing data science programmes and courses either through universities or specialized professional companies working in the information technology sector. According to a recent survey conducted by Glassdoor (2022), data scientist is one of the best jobs in the USA in 2022, ranked third among the 50 best occupations. According to Glassdoor (2022), this job had a satisfaction score of 4.1 out of 5, a median base salary of US$120,000 (see Figure 1) and over 10,000 job openings. Michael Rappa, the founding director of the Institute for Advanced Analytics, defines a data scientist as a person with the technical knowledge and skills to be able to extract useful insights from a variety of data. However, the most important quality of a data scientist is a passion for grappling with the complexity of data analysis (Robertson, 2022).

Whereas human civilization is still witnessing the Fourth Industrial Revolution, some may claim that data is the new oil of the 21st century, similar to the economic value of oil in the 21st century. In a tech forum in Stockholm, Joe Kaeser, chief executive officer of Siemens, said: ‘Data is the oil, some say the gold, of the 21st century – the raw material that our economies, societies and democracies are increasingly being built on’ (ET Bureau, 2018).

Thus, we are living in a digital economy where data is more valuable than ever before. Regarding the definition of data, many sources agree that information is the product of data processing. Therefore, data represents the base level of the knowledge pyramid, which starts with data then progresses to information, knowledge and, finally, wisdom at the top of the pyramid. In his study on big data, Shiri (2014) delineates the different aspects of data as a multifaceted and complex concept. In addition, he developed a visual presentation of types of data (see Figure 2).

Data science

Data science is one of the most prominent modern sciences in the third millennium. Some studies have argued that data science is inherently interdisciplinary (Finzer, 2013; Rose, 2016; Song and Zhu, 2016; Topi, 2016). According to Loukides (2012), data science involves using computer-based systems and processes that can analyse huge amounts of data and extract knowledge from it. Therefore, data science aims to transform data into actionable knowledge. The data in the data science era is more important and complex than the science itself. A definition of data science is yet to be determined. William Cleveland coined the term ‘data science’ in 2001 in his article titled ‘Data science: An action plan for expanding the technical areas of the field of statistics’. Cleveland (2001) describes data science as involving a mixture of statistics and large-scale computing. Additionally, after the US economy recovered in 2011, data science expanded by launching more data science programmes. Overall, there have been many attempts to define ‘data science’. While there is not a specific definition of this new science, some argue that data science is an umbrella term and may subsume other terms such as ‘data analytics’, ‘data mining’ and ‘machine learning’ (Hoyt and Wangia-Anderson, 2018).

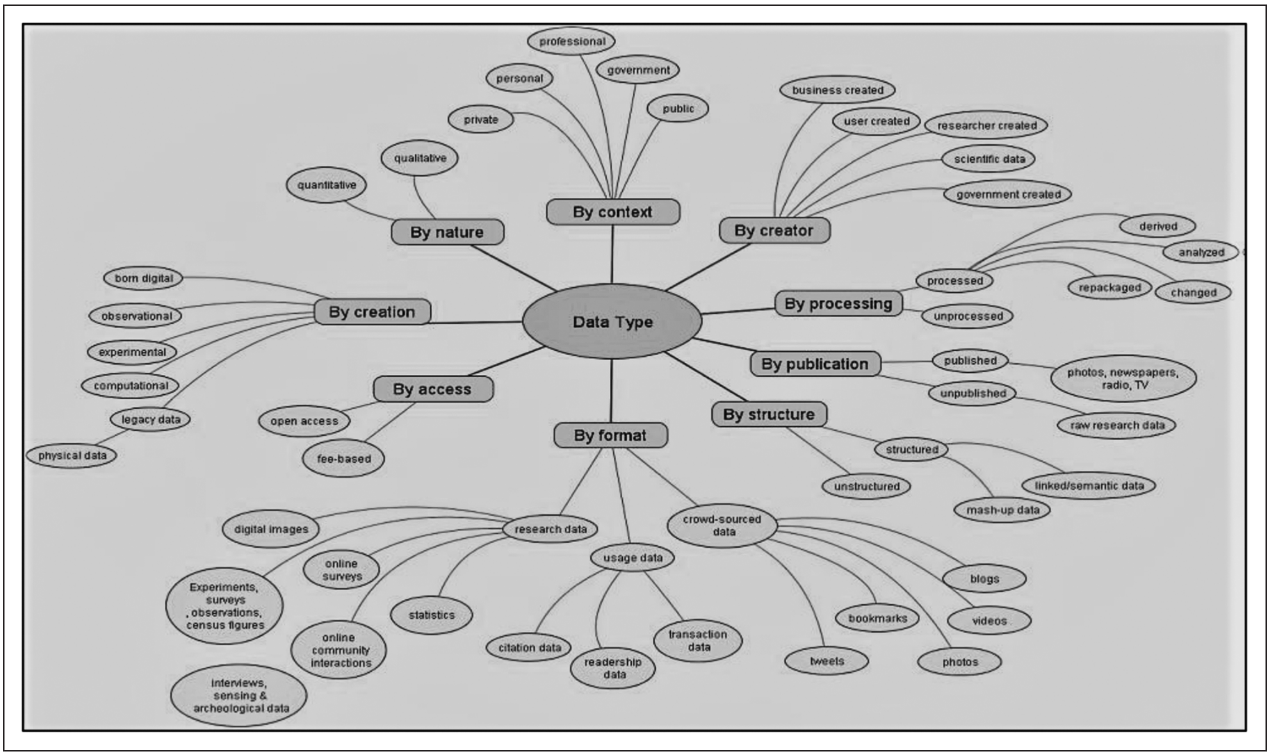

Figure 2. Facets of data.
Source: Shiri (2014: 362).

Dhar (2013) defines data science as the study of the generalizable extraction of knowledge and insights from structured or unstructured data. To achieve this aim, data science uses various scientific methodologies, processes, tools and software, such as Tableau, R, Excel, Gephi and Plotly (Barlas et al., 2015; Zakaria, 2021b). In relation to the health sciences, the US National Institutes of Health (2018) defines data science as follows: 'The interdisciplinary field of inquiry in which quantitative and analytical approaches, processes, and systems are developed and used to extract knowledge and insights from increasingly large and/or complex sets of data'. Functionally, a simple definition of data science is the science of extracting knowledge from data sets, which are typically large. This knowledge provides actionable insights for decision-makers in different domains and contexts.

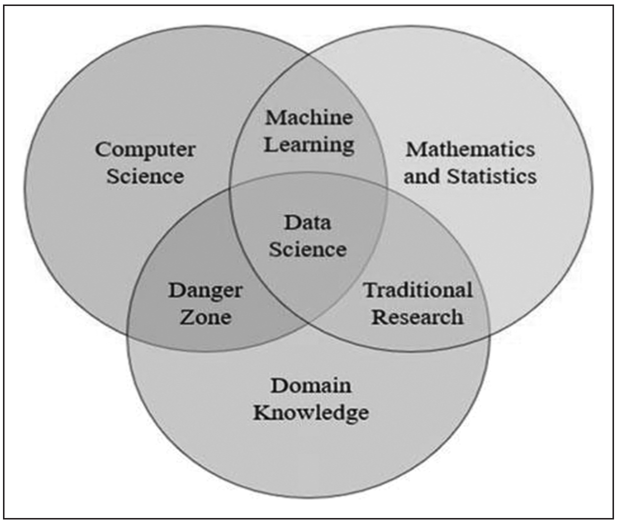

Figure 3. Venn diagram of data science.
Source: Egger and Yu (2022: 39).

Data science as an interdisciplinary science

As shown in Figure 3, data science generates interest in many disciplines. At first glance, data science has a significant relationship with mathematics, statistics and computer science. Data science has revolutionized different academic disciplines, including business, marketing, computer science (Bennett et al., 2019) and health sciences (Chiu and Li, 2018; Sanchez-Pinto et al., 2018). These subject areas involve data that needs to be processed and analysed with the help of data science techniques to make rational decisions. In other words, many disciplines – such as law, history and even nursing – have adopted data science because they deal with data-intensive and big data. Other examples of such disciplines include astronomy (Borne et al., 2009), media and entertainment (Gold et al., 2013), climate change (Faghmous and Kumar, 2014), neurobiology (Dierick and Gabbiani, 2015), physical medicine and rehabilitation (Ottenbacher et al., 2019), tourism (Egger, 2022) and other related disciplines as introduced by Cao (2018) in his book *Data Science Thinking: The Next Scientific, Technological and Economic Revolution*.

Data science is used, for example, as an approach to predict patient aggression in mental health care based on electronic health records related to aggressive events (Suchting et al., 2018) or to predict cocaine use from depressive symptoms (Suchting et al., 2019). In discussing astronomy education, Borne et al. (2009) mention that the next generation of specialists and non-specialists must learn the techniques and foundations of data science in order to enhance further understanding of the universe, both through formal education systems and continuing education.

Data science and librarianship

Several studies have discussed the relationship between library and information science (LIS) and computer science, and have attempted to reveal the commonalities and differences between these disciplines (e.g. Artandi, 1972; Wang, 2009). Based on the content analytical study by Virkus and Garoufallou (2019), several disciplines such as LIS, information systems, and knowledge management provide very useful contributions to data science. And according to Marchionini (2016), information scientists deal with the entire data life cycle and also with the socio-cultural issues relate to data, such as data collection, data quality, data cleaning, and storage and preservation of data. In 2005, a critical question was posed during a brainstorming session in Sydney relating to data science and data analytics: 'Information science has been there for so long, why do we need data science?' (Cao, 2017:2). Moreover, similar questions have been asked in other contexts, such as: 'Is data science old wine in new bottles?' (Agarwal and Dhar, 2014:443).

According to Hoel et al. (2018), big data and data science are a trend that will make librarians more engaged in data analytics, especially when the applied side is related to usage data for learning analytics. Indeed, Marchionini (2016) shows that data science emerges from four key sectors: information science, statistics, computer science and the knowledge domain that represents the general sector of the practical aspects of data science.

Librarians have a good deal of expertise in technical processes and information services in libraries and information centres, such as cataloguing, classification, indexing and abstracting, reference services and managing digital collections – all of which aim to assist researchers in finding the information they are seeking. In the era of data science and big data, the data librarian assists and advises researchers on where to locate information resources, how to manage data, and how to gain access to the resources they need (Harris-Pierce and Liu, 2012). In the new and emerging field of big data and data science, Ahmad et al. (2019) consider that the role of librarians has already changed, and they now work as data scientists or digital services managers. In this regard, Semeler et al. (2019) emphasize that data librarians should have the skills that are taught in data science in order to accomplish their assigned tasks. As a result, we can conclude that the demand for data science education in LIS schools and departments has increased in recent years to prepare data librarians who are capable of providing modern services in the world of big data.

In conclusion, it can be understood that there is an explicit relationship between data science and LIS as the information itself represents the result of data processing. As suggested by Marchionini (2016), data science is a subset of information science and some data science programmes could be housed in information schools as information science may be a key element in data science, and so that this emerging area benefits from the diversity of views that interdisciplinary cooperation brings. Hence, it is likely that this relationship has contributed to the launch of data science programmes by LIS schools at several US and European universities – for example, the Department of Information and Library Science at Indiana University and the School of Information Sciences at the University of Illinois, which offer a data science specialization within their Master of Library Science and Master of Information Science degrees, respectively (Wang, 2018). In September 2019 at Cairo University in Egypt, a cooperation agreement was signed between the Department of Libraries, Documents and Information Technology in the Faculty of Arts and the Department of Information Systems in the Faculty of Computer and Information. Both parties agreed to develop a Bachelor's programme entitled 'Knowledge Management and Data Sciences'. This exemplifies the interdisciplinarity of data science and its relationship with other sciences, especially computer science and artificial intelligence.

Data science education

The need for a competent workforce in data-science-related fields has become a major influence in different scientific disciplines (Ortiz-Repiso et al., 2018). As illustrated in Figure 4, the number of data science

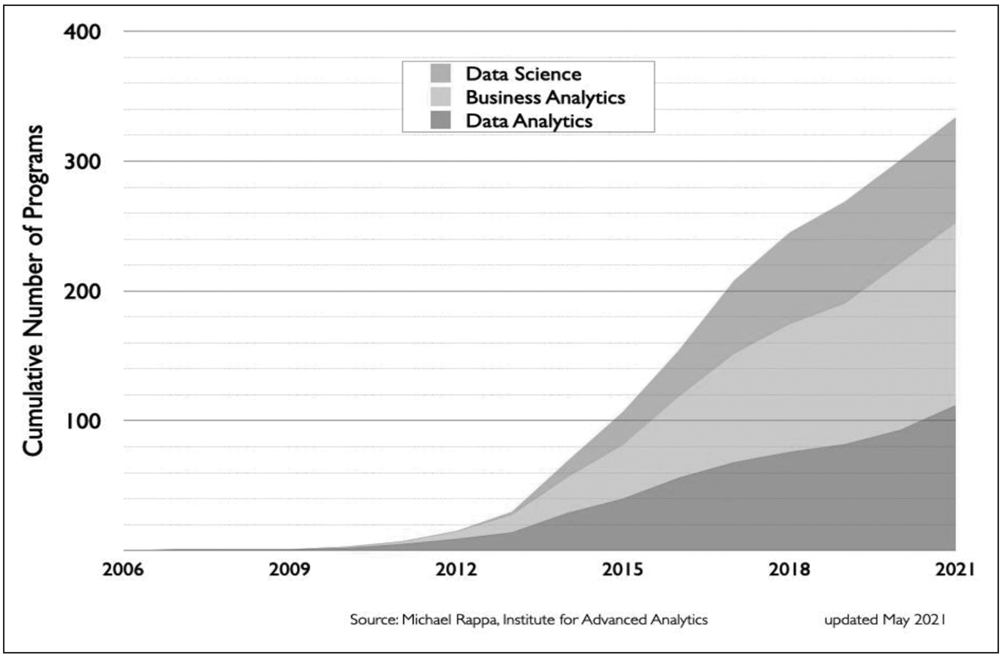

Figure 4. Growth of analytics and data science Master's degree programmes in the USA.
Source: Institute for Advanced Analytics (2021).

degree programmes has increased fourfold since 2013 in the USA.

Many institutions around the world now offer degree programmes in data science and data analytics. According to Cao (2018), there are over 150 institutions worldwide that have either programmes or courses in data science, big data and data analytics. Most of these programmes focus on training postgraduate specialists in business disciplines, followed by the disciplines of computer science, statistics and health sciences. Launched in 2007 at North Carolina State University (2007), the Master of Science in Analytics was the first postgraduate programme related to data science. This programme has been uniquely designed to provide students with the ability to obtain actionable insights and effectively communicate using a vast and diverse amount of data. In 2011, the world's first PhD in Analytics was launched by the University of Technology Sydney (2011). More information on courses and subjects related to data analytics and data science can be found on Ryan Swanstrom's (2022) website, where there is a list of the college and university data science degrees offered worldwide. This list included 632 programmes at the time of the present study. It may be noted that the vast majority of these degrees are offered in the USA.

Literature review

Some studies have focused on data science education in universities, and this review highlights such studies. In a preliminary study relevant to this subject, Varvel et al. (2012) considered data science courses offered at schools of LIS and divided them into four categories depending on the extent to which they contained data science topics. The categories were: data-centric (8%), data-inclusive (11%), digital (27%) and traditional courses related to LIS (54%). In another study, Bussaban and Waraporn (2015) discuss the motivations for the integration and incorporation of data science courses into the teaching of computer science and mathematics in the Faculty of Science and Technology in Thailand at both the faculty and student levels. Giabbanelli and Mago (2016) analyse the content of courses and programmes in computational modelling and data science offered by two public universities in Canada and the USA, and introduce design principles for a course on computational modelling and data science in order to emphasize the need for integration in the teaching of computational modelling and data science courses. In another investigation, Tang and Sae-Lim (2016) provide a content analysis of 30 data science programmes in the USA. They focus on the linguistic patterns of the programme descriptions and curricular requirements. The study found that most data science courses covered a basic level of analytical skills.

Previous studies have mentioned that data science education within LIS programmes must address fundamental data and information organization issues, as well as using data to improve the level of services provided by libraries, archives and various information centres (Song and Zhu, 2016). Song and Zhu (2017) conducted a survey study on the subjects taught in 48 data science programmes in US universities. They found that most of these programmes were developed through collaboration between multiple schools and departments. In another study, Zhang et al. (2017) investigate data science education in LIS schools in China by using the material available on their websites. In addition to the standard courses offered by Chinese LIS programmes, they found that these programmes involved various core courses related to data science, such as data management, data structure, database system principles, statistics, data analysis, data mining, algorithms, data repositories and cloud computing. Mukthar and Sultan (2017) review the state of big data analytics and its applications in Saudi higher education, and find that it is still in its early stages. The authors do not address issues related to data science education. Instead, they concentrate on the importance of data analytics and related challenges.

Thomas and Urban (2018) show that LIS programmes (e.g. iSchools) offer data sciences course that emphasize the interaction between humans and computers. Popular courses that relate to data processing in this context are text mining, information and social network analysis, and data visualization. In a recent study, Saleh (2020) aimed to identify the characteristics of data science courses in a sample of LIS schools in US universities during the 2019–2020 academic year. She used a descriptive analytical approach and found that US LIS programmes offered 213 (13.6%) courses in data science. The study recommends that it is important to ensure that the objectives of data science programmes are in line with job market requirements.

In his study, Zakaria (2021a) aimed to investigate the situation of data science education in Arab countries in 2020. The study analysed the structure of 21 data science programmes offered in nine Arab countries. The average number of approved credit hours in the programmes studied was 47.63. With regard to the academic affiliation of the data science programmes, it was found that these programmes were in a variety of schools where computer sciences were the dominant trend. Finally, the research outlines a proposal for a Master's in Data Science that could be offered by LIS departments in the Arab region.

Based on the review of previous studies presented here, it can be claimed that the present study is the first to highlight data science education in Middle Eastern countries. Mani et al. (2021) developed a model relying on data science framework in order to support research services offered by academic libraries. They examined current and future academic library services, skills, structures and stakeholders. They report that libraries currently provided data-based services, such as geographic information systems, data visualization, impact measurement, and text and data analysis. Thus, the research services provided by librarians focused mainly on data, including integrating data analysis into research methodologies, preparing data visualizations for faculty publications, and measuring scientific impact using bibliometric analysis methods.

Statement of the study

There has been a marked increase in data science education programmes offered by both international institutions and professional course providers worldwide. Over the past two decades, the number of degree programmes in data science has increased around the world. To distinguish data science programmes from those in computer science or information systems, data science programmes mainly focus on the three pillars that are important requirements in data science education: computing foundations, mathematical/statistical foundations and domain expertise (Raj et al., 2019). Data science programmes have become popular in academia because of the growing demand for data science jobs, which have been described as 'the sexiest job of the 21st century' (Davenport and Patil, 2012). Different universities around the world have demonstrated their interest in data science education through the establishment of academic programmes at both the undergraduate and postgraduate levels, and there are a few universities that grant doctoral degrees in Data Science – for example, the PhD in Big Data and Data Science at the University of Washington and the PhD in Data Science at Fudan University in China (Zhang et al., 2017). Another PhD in Data Science is offered by New York University Shanghai in partnership with the New York University Graduate School of Arts and Science and the New York University Center for Data Science. Massive open online course (MOOC) platforms, including Coursera and Simplilearn, offer several online courses to meet the growing demand for data science professionals in different domains.

In line with the global trend in the emergence of data science, and to keep up with the modern trends in data science education, some higher education institutions in the Middle East have also launched several academic programmes in, for example, data science, data analytics, big data, business analytics, and data analytics in health management. These programmes have not been limited to one specific discipline.

Instead, they include a wide range of subject areas from different disciplines, such as computer science, statistics, mathematics, health sciences and social sciences. Despite highlighting the data scientist profession as being 'the sexiest job of the 21st century', as mentioned above, there is a clear ambiguity regarding the academic qualifications of data scientists, especially in Middle Eastern countries. Furthermore, the establishment of active research and education programmes is an urgent necessity to support national development. Therefore, the current study aims to reveal the present situation of these programmes in terms of data science education in the region. Accordingly, the following questions are considered:

1. Which institutions are offering data science programmes in the Middle Eastern region?
2. What are the differences and similarities in these programmes?
3. What are the major topics/subjects covered in data science courses?
4. How are information science and interdisciplinary science curricula being used in data science programmes?

Materials and methods

This study used a survey method to reveal the current reality of Middle Eastern institutions that offer data science programmes. According to the World Population Review (2022), the Middle East encompasses Turkey, Cyprus, the Syrian Arab Republic, Lebanon, Iraq, Iran, Israel, Palestine, Jordan, Egypt, Saudi Arabia, Kuwait, Yemen, Oman, Bahrain, Qatar and the United Arab Emirates. Of these countries, the survey revealed that only 13 have data science programmes. The remaining Middle Eastern countries have not been discussed in this study as they do not have any declared data science programmes on the Web.

The author established four criteria for including a programme in the present study. First, an academic programme was defined as any set of courses that forms an integrated curriculum leading to an academic degree, such as a Professional Diploma, a Bachelor's degree, a Master's degree or a PhD. The study focused only on programmes offered by academic institutions; data science courses offered by companies or online, or leading to a certificate, were excluded. Second, to identify the programmes for inclusion in this study, three search terms were used in the Google search engine: 'data science education', 'data analytics education' and 'data science programmes'. Third, an academic programme was considered to be a data science programme if the terms 'data' or 'analytics' clearly appeared in the programme's title. In addition, other programmes were included (e.g. business analytics, data analytics in health management or big data analytics), since all these programmes represented the applied side of data science and reflected the interdisciplinary nature of the field. Finally, the study selected data science programmes that provide sufficient information concerning credit hours, program objectives, program courses, curriculum plans and courses descriptions on their websites.

Subsequently, the websites of Middle Eastern universities were visited to find out whether they offered data science programmes, both at the undergraduate and graduate levels. Within the criteria outlined above, 48 data science programmes were included in the study (for a full list of the programmes, see Appendix 1). Several attempts were made to collect as much information as possible about these programmes from their resources, especially their websites. Data collection was conducted by searching the Web, where each data science programme's website was visited and carefully searched. Furthermore, descriptions and the syllabi or course catalogues (available online) of the data science courses were downloaded for analysis at a later stage.

Results and discussion

Distribution of data science programmes by country

Thirteen countries in the Middle East offered 48 data science degree programmes (see Table 1) at the time of this study (the survey was closed in April 2022).

As shown in Table 1 and Figure 5, 18 (37.5%) data science programmes were offered by the Arabian Gulf countries (Bahrain, United Arab Emirates, Oman, Qatar and Saudi Arabia). However, the researcher did not find any data science programmes offered by Kuwaiti institutions. Saudi Arabia had the most data science programmes in the Middle East with eight (16.67%). All of the data science programmes offered by Saudi institutions are affiliated with faculties of computer science and information technology. In line with the interests of the Saudi government to lay foundations for the promotion of the culture of a knowledge-based economy, and supporting digital conversion plans, the Princess Nourah bint Abdulrahman University – the largest university for women in the world – has established a unique Master of Science in Computing (Data Science) for Saudi women through collaboration with Dublin City University in Ireland. The first cohort of data analytics students graduated in 2018; 57 students completed the programme. The Princess Nourah bint Abdulrahman

Table 1. Distribution of data science programmes by country.

Rank	Country	Master's degree (*f*)	Professional Diploma (*f*)	Bachelor's degree (*f*)	Total (*f*)	%
1	Saudi Arabia	7	–	1	8	16.67
2	Cyprus	6	–	–	6	12.50
3	Jordan	3	–	3	6	12.50
3	Turkey	6	–	–	6	12.50
4	United Arab Emirates	4	–	–	4	8.33
4	Lebanon	3	1	–	4	8.33
5	Egypt	–	2	1	3	6.25
5	Qatar	2	–	1	3	6.25
6	Israel	2	–	–	2	4.17
6	Oman	2	–	–	2	4.17
6	Palestine	2	–	–	2	4.17
7	Bahrain	1	–	–	1	2.08
7	Iran	1	–	–	1	2.08
Total		**39**	**3**	**6**	**48**	**100**
%		**81.25**	**6.25**	**12.5**		

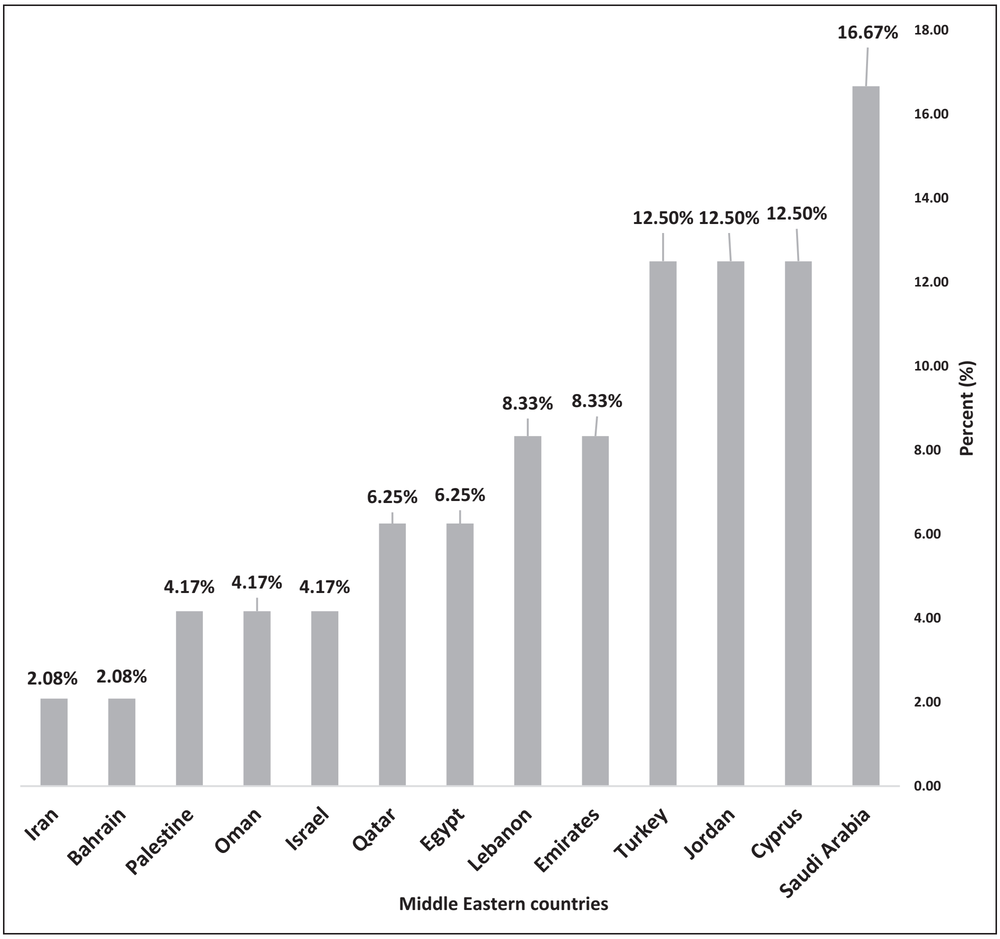

Figure 5. Data science programme distribution in the Middle East.

University has introduced a Bachelor's degree in Data Science and Analytics in the College of Computer and Information Sciences. The programme comprises 127 credit hours and all of the specialization courses are taught in English. This programme equips students with the knowledge skills required to join the labour force in Saudi Arabia. The graduates of the programme can find career opportunities in banks, hospitals, educational institutions, and private and public sector institutions, and the programme qualifies Saudi

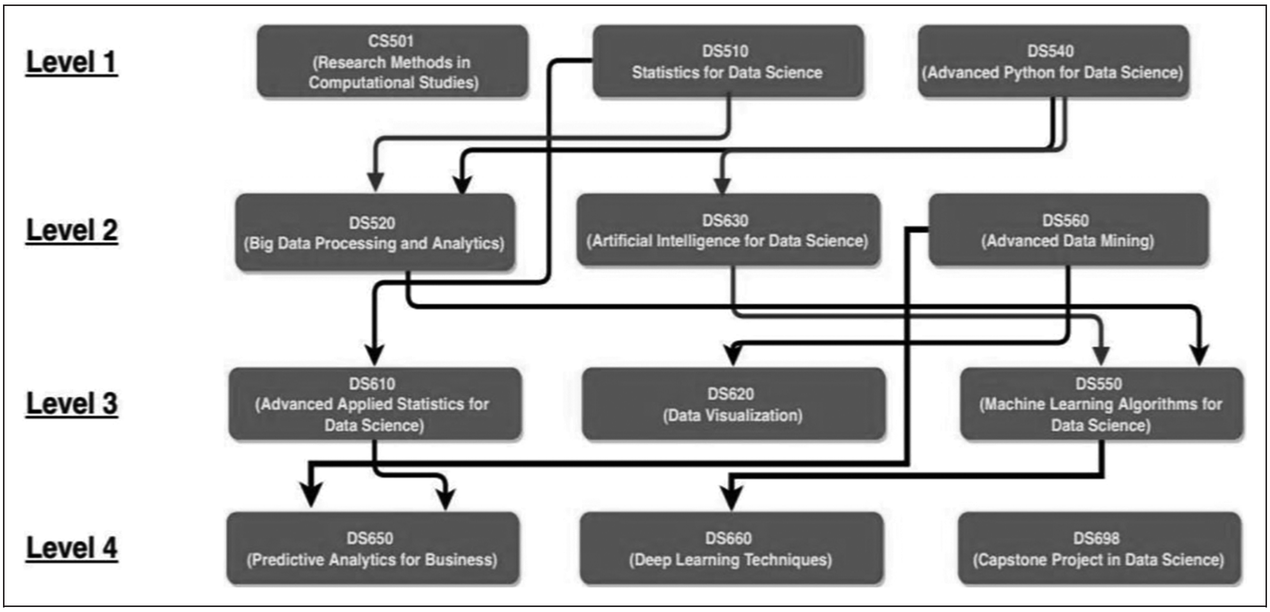

Figure 6. Structure of the Saudi Electronic University's Master of Science in Data Science programme.

women to work in data science positions in the public and private sectors.

The Saudi Electronic University has introduced a Master of Science in Data Science programme. This programme provides students with a high level of skills in various aspects of data science and data analysis software. In addition, it equips students with the latest tools and methods regarding big data technologies and focuses on combining the cognitive and applied aspects of data science, machine learning and artificial intelligence. Practically, the programme aims to apply these technologies in problem solving. It comprises 12 courses (three credit hours each) over four semesters. Figure 6 illustrates the structure of the Master of Science in Data Science programme by level (Saudi Electronic University, 2022). Where data science courses are taught in English, institutions set certain rules for admission. Applicants with a Bachelor's degree issued by non-English-speaking countries are required to score 6.5 on the Academic IELTS (International English Language Testing System) or pass Stage 3 of the Global College of Engineering and Technology (GCET) IELTS preparation course and score 6 on the Academic IELTS.

In Bahrain, a Master of Science in Big Data Science and Analytics was launched in 2018 by the University of Bahrain under the administration of the College of Science and the College of Information Technology. This Master's programme is validated by Liverpool John Moores University in the UK. In accordance with this validation, the graduates of the programmes receive two certificates – one from the University of Bahrain and one from Liverpool John Moores University.

The institutions in Cyprus have introduced six data science programmes (12.5%), including Data Analytics at the School of Sciences, University of Central Lancashire Cyprus; Business Intelligence and Data Analytics at the Cyprus International Institute of Management; and Data Science and Engineering at the Faculty of Engineering and Technology, Cyprus University of Technology. Unsurprisingly, the Business Intelligence and Data Analytics programme is offered by an institution that is concerned with management sciences. According to Chen et al. (2012), business intelligence and analytics has its roots in the longstanding field of database management as it relies heavily on various data collection, extraction and analysis technologies.

The institutions in Jordon have introduced six data science programmes (12.5%). Al-Ahliyya Amman University, for example, offers a Bachelor's degree in Data Science and Artificial Intelligence. Students who have a high school certificate with a minimum average of 60%, or equivalent foreign certificates, are accepted on this programme. In the 2019–2020 academic year, the programme attracted only four students. However, this number increased to 45 students in the 2020–2021 academic year (Al-Ahliyya Amman University, 2022).

The survey showed that Turkish institutions have introduced six data science programmes (12.5%). In spite of the fact that the number of data science programmes in Turkey has proliferated over the past few years, Turkish universities do not grant Bachelor's degrees or PhDs in Data Science. As shown in Appendix 1, all of the data science programmes are affiliated with various schools or faculties, such as the

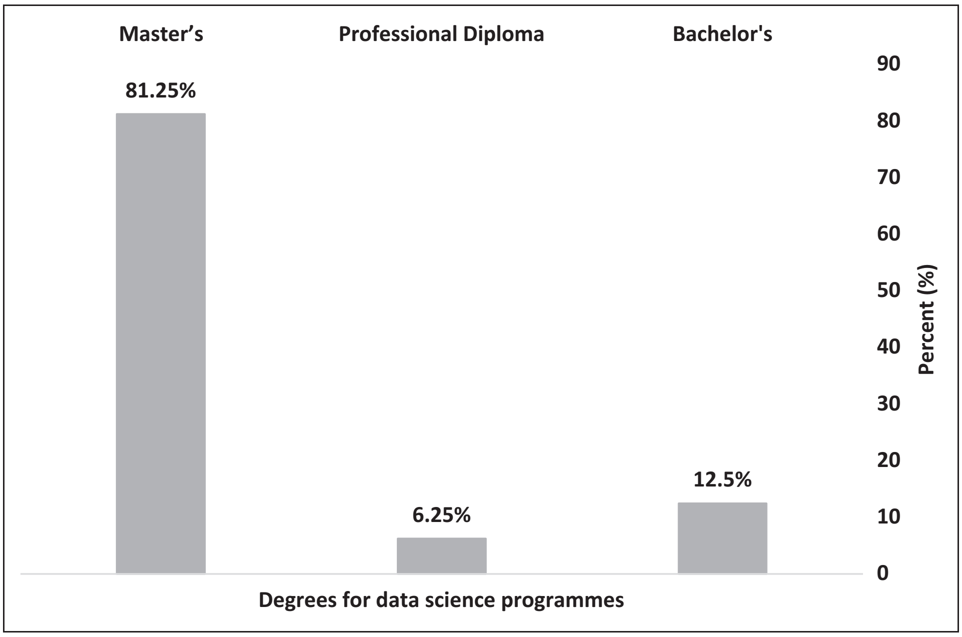

Figure 7. Distribution of degrees for data science programmes.

School of Natural and Applied Sciences at Bahcesehir University, the Faculty of Engineering and Natural Sciences at Sabancı University, and the Faculty of Management at Istanbul Technical University. This shows that data science is related to many scientific disciplines as an interdisciplinary science. The survey showed that all of the curriculum plans and course descriptions are available on the data science programmes' Turkish websites in an English-language version, and all the courses are delivered to students in English as the international language for teaching in these institutions. All of the Turkish programmes offer thesis and non-thesis options to gain a Master's degree in Data Science, expect for the programme at MEF University, entitled Big Data Analytics, where students have to complete 10 courses and a project. Graduates from the professional Master's in Data Analytics offered by Sabancı University are qualified to work as data analysts, data managers, data modellers and data scientists in financial institutions, health care, insurance, telecommunications, marketing and media firms, retail and government agencies.

In Egypt, the survey revealed that three higher education institutions offered data science programmes (6.25%): Nile University, the American University in Cairo and the German University in Cairo. Nile University began offering its Big Data and Data Science Professional Diploma in 2015. The programme comprises four courses (each with a minimum of 36 hours of instruction). This Professional Diploma provides a unique combination of science, business, technology and industry knowledge aligned with advancements in the information and communications sector in this area. The American University in Cairo started a programme entitled Data Science in the first semester of 2019. This programme is an undergraduate programme based in the School of Science and Engineering. Finally, the German University in Cairo has introduced a Data Science Professional Diploma, which comprises five courses and a capstone project over two semesters. These five courses cover various topics in data science, as well as the latest programming frameworks and data science technologies. The diploma attracts those who are interested in developing their experience in data analysis and data management skills (German University in Cairo, 2022).

In Iran, a Master of Science in Data Science is offered by the Tehran Institute for Advanced Studies. The total number of units in this programme is 32. As well as having their tuition fees waived, Iranian students receive financial support on a monthly basis to pursue research, without the need to resort to extra activities outside the university. The programme provides full financial support for students to present their research output at reputable international conferences. More details on the remaining data science programmes included in this study can be found in Appendix 1.

Degree programmes

As shown in Figure 7, Master's degrees are predominant (81.25%) as mostly Master's programmes are offered by educational institutions in the Middle East (39 programmes), followed by Bachelor's degrees

(12.5%) and Professional Diplomas (6.25%). From Table 1, it can be observed that most of the data science Master's programmes are offered by Arab universities (24 programmes; 61.5%).

Although data science education for undergraduate students seems to be rare, the survey found that six programmes were offered at the Bachelor's degree level. Such programmes were offered at the following institutions: the American University in Cairo, the University of Jordan, Al-Ahliyya Amman University, Isra University, the University of Doha for Science and Technology, and Princess Nourah bint Abdulrahman University. The survey showed that there were three data science programmes at the level of Professional Diploma in Lebanon and Egypt – namely, Data Science and Big Data in Lebanon and Data Science, and Big Data and Data Science, in Egypt. The American University in Cairo's programme may be considered the first programme leading to a Bachelor of Science degree in Data Science in Egypt. It should be noted that there are no data science programmes at the level of PhD in the region because this discipline is still a new major and there is currently no need for professional data scientists to hold a PhD. Data scientists are not required to have a PhD to work in data science; rather, data scientists can analyse real data and apply machine learning models using algorithms. However, if a data scientist needs to pursue developmental research in data science, they need to enrol for a PhD.

Table 2. Names of the data science programmes ($N = 48$).

Words used in name	*f*	%
Data	44	91.67
Data Science	25	52.08
Analytics	15	31.25
Name does not include Data Science	13	27.08
Data Analytics	9	18.75
Artificial Intelligence or Machine Learning	7	14.58
Big Data	6	12.50
Business Analytics or Business Intelligence	5	10.42

Programme names

Table 2 illustrates the different names of the data science programmes surveyed in the present study. The results show that the data science programmes significantly use the words 'Data' and 'Analytics' in their names – for example, Data Science and Data Analytics. Forty-four programmes (91.67%) have 'Data' in their names, whereas fifteen (31.25%) have 'Analytics'. In contrast, only five programmes (10.42%) are named Business Analytics or Business Intelligence; these are the specific names of programmes offered by schools of business or management, which are usually based in a university's business school (e.g. the Business Intelligence and Data Analytics programme at the Cyprus International Institute of Management).

As shown in Table 2, there is a clear disparity in the names of the data science programmes. The most frequently used name for data science programmes in Middle Eastern universities is Data Science; this was the stand-alone name of programmes at 25 institutions (52.08%), including the Jordan University of Science and Technology; the Saint Joseph University of Beirut, Lebanon; and İstanbul Şehir University and Koç University, Turkey. It was also noted that 'Data Science' was used in conjunction with other fields in the names of programmes, such as Big Data Science and Analytics at the University of Bahrain; Machine Learning and Data Science at the Interdisciplinary Center Herzliya, Israel; Applied Statistics and Data Science at Birzeit University, Palestine; and Data Science and Engineering at the Cyprus University of Technology.

With regard to the remaining programmes, they have related names – for example, Business Analytics at the American University of Beirut, Lebanon;

Table 3. Number of credit hours of the data science programmes.

Number of credit hours	Master's degree (*f*)	Professional Diploma (*f*)	Bachelor's degree (*f*)	Total (*f*)	%
130–135	–	–	4	4	8.33
120–127	4	–	1	5	10.42
90	4	–	–	4	8.33
42–54	3	–	–	3	6.25
38–39	2	–	–	2	4.17
30–36	18	2	–	20	41.67
21	–	1	–	1	2.08
0	8	–	1	9	18.30
39	**3**	**6**	**48**	**100**	
81.25	**6.25**	**12.50**			

Artificial Intelligence and Big Data Specialty at the Interdisciplinary Center Herzliya, Israel; and Big Data Analytics and Management at Bahcesehir University, Turkey. In accordance with Aasheim et al.'s (2015) study, it can be said that the names of data science programmes largely revolve around the terms 'Data Science' and 'Data Analytics', while 'Big Data' appears in six programme names (12.5%).

Credit hours

The study found that the number of credit hours approved in the data science programmes ranged from 21 to 135, with an average of approximately 50.1 hours per programme. Table 3 shows that the highest number of credit hours is for Bachelor's degrees, ranging from 130 to 136 (4 programmes; 8.33%) – for example, the Data Science and Artificial Intelligence programme at Isra University, Jordan (135 hours), and the Data Science programme at the American University in Cairo, Egypt (130 hours). In contrast, the lowest number of hours is for the Data Science and Big Data programme at the American University of Science and Technology, Lebanon (only 21 hours), as it is considered a Professional Diploma. The number of credit hours for data science programmes at the Master's level (31 programmes; 64.6%) ranged from 30 to 127. Of note here is that most programmes ranged from 30 to 36 credit hours, especially Master's programmes in Data Science. Table 3 shows that there were 20 programmes (18 Master's and 2 Professional Diplomas; 41.67%) ranging from 30 to 36 hours.

It was noted that there were nine programmes (18.3%) that did not provide any information about their credit hours, including the Data Science and Engineering programme offered by the Cyprus University of Technology; the Data Science and Machine Learning programme at Sultan Qaboos University, Oman; and the Data Science and Artificial Intelligence programme at the University of Doha for Science and Technology, Qatar. Regarding the duration of study, most traditional Master's degree candidates require approximately 24 months to complete their studies. However, the length of the breaks between semesters or trimesters, and holidays, can extend the real schedule by several months.

Programme objectives

The data science programmes in the Middle East aim to qualify their students for work in the job market as data scientists and data analysts. The survey showed that most data science programmes in the region do not provide information about their objectives in relation to data science education for students who may be deciding to enrol in such programmes in the future. However, the University of Bahrain provides a comprehensive list of the objectives of its Big Data Science and Analytics programme, which will prepare students to:

1. Work successfully as big data scientists or analysts in a variety of related career fields.
2. Pursue research activities in several related areas involving big data science and analytics.
3. Pursue professional development to be recognized as professional big data scientists or analysts.
4. Enhance society development through an effective use of the knowledge and skills specific to big data science and analytics. (University of Bahrain, 2022)

In the United Arab Emirates, the Abu Dhabi School of Management offers a Master of Science in Business Analytics. According to the Abu Dhabi School of Management, students who complete this programme successfully will be able to:

1. Demonstrate a critical awareness of current issues in Business Analytics
2. Compile and manage large data sets within organizational contexts
3. Integrate, analyze and evaluate new and/or abstract data and situations, using a wide range of appropriate technologies and transform such data and concepts into options and solutions
4. Apply a critical selection of appropriate research instruments and advanced analytical and problem-solving skills to interrogate large data sets
5. Appraise the application of business analytics in solving business issues
6. Employ independent learning strategies to update own knowledge in the field of business analytics and keep pace with innovations, trends and standards in the discipline. (Abu Dhabi School of Management, 2022)

Regarding the Data Analytics programme at Talal Abu-Ghazaleh University in Jordon, graduates who complete this programme will be able to:

- Apply quantitative modeling and data analysis techniques to the solution of real-world business problems.
- Recognize and analyze ethical issues related to intellectual property, data security, integrity, and privacy.

- Demonstrate knowledge of statistical data techniques used in business decision-making.
- Apply the principles of data science to the analysis of business problems. (Talal Abu-Ghazaleh University, 2022)

Interdisciplinary nature of data science programmes

Cao (2018) points out that courses in data science are offered by various bodies, such as research and academic institutions, vendors, professional course providers and through joint provision. It can be said that institutions of higher education are considered to be the place to receive data science education, and to train data scientists and specialists, compared to the other professional institutions working in the sector (Zhang et al., 2017). This may explain the apparent increase in the number of data science programmes launched recently at universities around the world, including in the Middle East.

As reported by Song and Zhu (2016), data science education has attracted the attention of various interdisciplinary fields. With regard to the academic affiliation of data science programmes in the Middle East, it was observed that these programmes can be found in a variety of faculties or schools – for instance, a College of Science, School of Information Technology and Computer Science, Faculty of Humanities, School of Engineering and Faculty of Management. However, these programmes appear to be linked to faculties and schools related to computer science and engineering because of the practical nature of this emerging discipline.

Besides, some of these programmes are classified as graduated programmes or graduate studies and, therefore, follow the institutions directly without being affiliated with a specific college, such as the Data Science programme at the American University in Cairo, Egypt; Business Analytics at the Abu Dhabi School of Management, United Arab Emirates; and Applied Statistics and Data Science at Birzeit University, Palestine – all of which are classified as graduate programmes or graduate studies. In addition, students need to have background knowledge of programming as a prerequisite for study in these programmes. Table 4 lists the main disciplines of the data science programmes analysed in this study. Computer sciences has the largest number of data science programmes (21; 43.75%), followed by science and technology (12; 25%), engineering sciences (7; 14.58%) and business sciences (6; 12.5%).

Again, as represented in Figure 8, most data science programmes come under the umbrella of faculties of computer science and science and technology.

Table 4. Main disciplines of the data science programmes.

	Main disciplines	***f***	**%**
1	Computer sciences	21	43.75
2	Science and technology	12	25.00
3	Engineering sciences	7	14.58
4	Business sciences	6	12.50
5	Health sciences	1	2.08
6	None	1	2.08
	Total	**48**	**100**

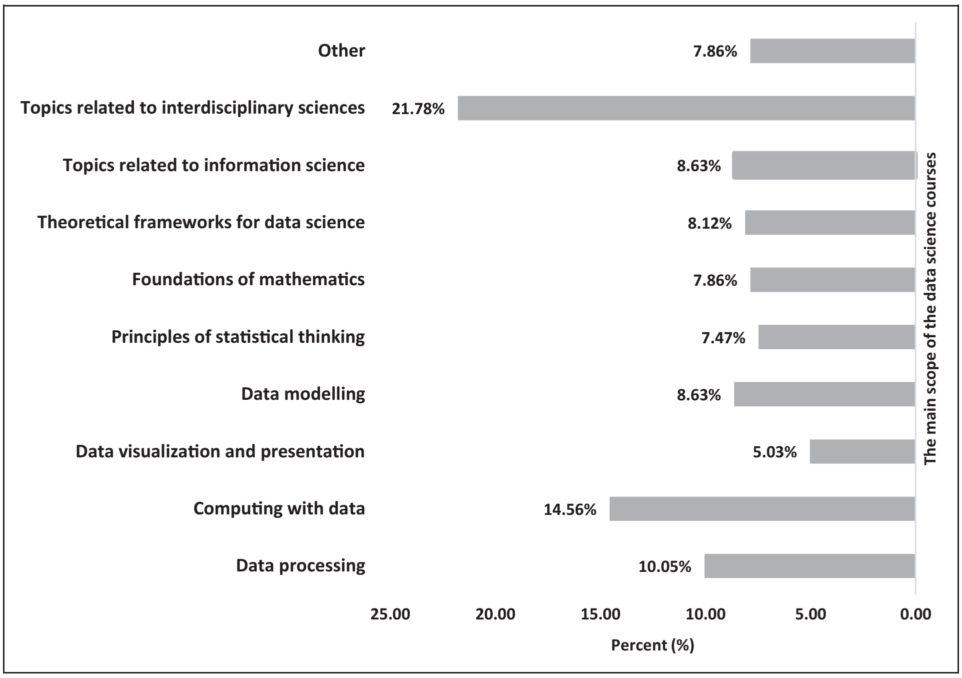

Figure 8. Distribution of the main scope of the data science courses.

Table 5. Frequency distribution of core and elective courses in the data science programmes.

	Core courses ($N = 420$)	f	%	Rank	Elective courses ($N = 356$)	f	%	Rank
1	Machine Learning	17	4.0	1	Data Structures and Algorithms	13	3.7	1
2	Big Data	14	3.3	2	Data Science	8	2.2	2
3	Data Science Research Project	14	3.3	2	Big Data	7	2.0	3
4	Big Data Analytics	13	3.1	3	Machine Learning	7	2.0	3
5	Data Exploration and Visualization	13	3.1	3	Database Systems	6	1.7	4
6	Data Analysis	10	2.4	4	Data Visualization	6	1.7	4
7	Data Mining	10	2.4	4	Digital Marketing	6	1.7	4
8	Dissertation (Thesis)	10	2.4	4	Social Network Analysis	6	1.7	4
9	Research Methods	10	2.4	4	Statistics	6	1.7	4
10	Introduction to Data Science	6	1.4	5	Computer Vision	5	1.4	5
11	Predictive Analytics and Machine Learning	6	1.4	5	Data Mining	5	1.4	5
12	Statistical Analysis	6	1.4	5	Natural Language Processing	5	1.4	5
13	Statistical Programming (Python)	6	1.4	5	Project Management	5	1.4	5
14	Data Ethics	5	1.2	6	Software Engineering	5	1.4	5
15	Database Management	5	1.2	6	Bioinformatics	4	1.1	6
16	Business Analytics	4	1.0	7	Cloud Computing	4	1.1	6
17	Big Data Management	4	1.0	7	Cryptography and Coding	4	1.1	6
18	Statistics for Data Science	4	1.0	7	Data Analysis	4	1.1	6
19	Artificial Intelligence	3	0.7	8	Data Ethics	4	1.1	6
20	Data Processing Systems	3	0.7	8	Deep Learning	4	1.1	6

According to the Tehran Institute for Advanced Studies (2022), Iran, the target audience for its Master's in Data Science is researchers and students who have some research background in computer science and engineering or related fields.

Programme courses

In order to produce qualified data science workers, or data scientists engaged in the business environment, data science programmes offer several compulsory and elective courses at the undergraduate and postgraduate levels. Core courses are courses that are provided by more than one university. In the present study, the courses in the data science programmes were investigated. The study excluded any courses that were offered by only one programme. Conversely, courses that were offered by more than one programme were considered to be core courses.

Table 5 shows the number of core and elective courses offered by the data science programmes in the present study. The total number of courses identified is 776. Of these, 420 (54.1%) are core courses. It was found that the core courses focus on the principles of data science – such as machine learning, big data, data analytics, data exploration and visualization, data analysis, data mining, database management, data ethics and statistical programming (Python) – and a research project in the form of a thesis or a comprehensive examination under the study plan of the programme.

At first glance, it can be noted that the Machine Learning course is listed first, with a frequency of 17 (4%), and is followed by Big Data and Research Project in Data Science, each with a frequency of 14 (3.3%). The Big Data Analytics and Data Exploration and Visualization courses come in third place, with 13 (3.1%) each. In fourth, there are four courses, each with a frequency of 10 (2.4%): Data Analysis, Data Mining, Dissertation (Thesis) and Research Methods. The reason why the Machine Learning course is listed at the top is because while data science studies data and how to extract meaning from it, machine learning, as a branch of computer science, depends on the appropriate techniques and tools for building models that allow computers to learn from data. It aims at enabling computers to solve problems without being explicitly programmed to solve them step by step (Gavrilova, 2021). Hence, a data science learner should be familiar with machine learning algorithms and how they work.

For clarification, the following can be taken as an example. The course CIT-651: Introduction to Machine Learning and Statistical Analysis, offered under the Big Data and Data Science programme at Nile University, Egypt, states:

> This course provides an introduction to machine learning and statistical data analysis. The course provides an introduction to the basic probability theory, statistics, and statistical data analysis. Topics such as parameter

Table 6. Main scope of the data science courses.

Main categories	Core courses (*f*)	Elective courses (*f*)	Total (*f*)	%	
Computing with data	49	64	113	14.56	
Data processing	52	26	78	10.05	
Data modelling	41	26	67	8.63	
Data visualization and presentation	26	13	39	5.03	
Foundations of mathematics	24	37	61	7.86	
Principles of statistical thinking	42	16	58	7.47	
Theoretical frameworks for data science	48	15	63	8.12	
Topics related to information science	28	39	67	8.63	
Topics related to interdisciplinary sciences	57	112	169	21.78	
Other	53	8	61	7.86	
Total		**420**	**356**	**776**	**100**
%		**54.1**	**45.9**		

> estimation, hypothesis testing and regression analysis will be covered in the course. In addition, the course will focus on machine learning topics including: Bayes classifiers, K-nn, decision trees, SVM, K-means, principal component analysis, independent component analysis and Neural Nets.
>
> During this course, students will learn how to solve real-life problems using state-of-the-art technologies developed for cloud-based machine learning computing and data analyses. (Nile University, 2022)

Since big data analysis is complex because of the high dimensions of data and their heterogeneous and ad hoc structures, it was observed that the data science programmes devoted core courses to data analysis – in particular, big data analytics. The course title Big Data Analytics occurred 13 times (3.1%); such courses give students the opportunity to acquire analytical skills related to data analysis, data mining applications, algorithms and statistics. According to the Master's in Data Science programme at the University of Cyprus, the course DSC 511: Big Data Analytics

> seeks a balance between foundational but relatively basic material in algorithms, statistics, graph theory and related fields, with real-world applications inspired by the current practice of internet and cloud services. Specifically, this course will look at social and information networks, recommender systems, clustering and community detection, search/retrieval/topic models, dimensionality reduction, stream computing, and online ad auctions. Together, these provide a good coverage of the main uses for data mining and analytics applications in social networking, e-commerce, social media, etc. The course is a combination of theoretical materials and weekly laboratory sessions, where several large-scale datasets from the real world will be explored. For this, students will work with a dedicated infrastructure based on Hadoop and Apache Spark. (University of Cyprus, 2022)

As appeared in Table 5, it should be noted that the titles of the courses offered by data science programmes are frequent in this table. Of these courses, it was found that there are introductory courses, such as Introduction to Data Science, Introduction to Data Analytics, Introduction to Big Data, Introduction to Machine Learning and Introductory Applied Statistics. These courses were offered by the programmes studied. It must be emphasized that introductory courses are important as they provide students with a sound knowledge of the essential areas of the programme.

As shown in Table 5, the total number of elective courses offered by the data science programmes was 356 (45.9%). These elective courses reflect the interdisciplinary nature of data science, revealing its relationship with other branches of science. Examples of these courses include Digital Marketing and Social Networking Analysis, both with a frequency of six (1.7%), and Natural Language Processing, Project Management and Software Engineering, each with a frequency of five (1.4%); the remaining courses that not included in mentioned table.

Main scope of the data science courses

By searching the data science literature, the researcher discovered several points of view that have been introduced by statisticians, mathematicians and computer scientists in order to divide the subject interests of data science as a new major. Three similar visions have been presented by Cleveland (2001), Donoho (2017) and De Veaux et al. (2017). Thus, the courses of the data science programmes were classified into 10 groups based on the researcher's vision (see Table 6).

The results in Table 6 and Figure 8 reveal that 169 courses (21.78%) included interdisciplinary curricular items under the category 'Topics related to interdisciplinary sciences' – for example, Leadership and Management, Corporate Finance, Communication Skills, Digital Marketing Analytics, Bioinformatics and other related courses. The results show that the category 'Computing with data' was in second place with 113 courses (14.56%). Examples of courses in this category include Computing Basics, Cloud Computing, Computer Vision, Recommendation Systems, Database Management Systems, Encryption and Coding, and Computer Engineering. The 'Data processing' category came in third with 78 courses (10.05%).

The curriculum structure of the data science programmes surveyed in this investigation includes courses related to information science (67 courses; 8.63%), such as Information Theory, Data Mining, Data Management, Cloud Computing, Information Security, Web Information Retrieval, Data Processing, Digital Cultural Heritage, Natural Language Processing, Social Network Analysis, Management Information Systems, Information Access, Advanced Internet Services, User Interfaces, and Information Law and Data Ethics. The 'Other' category in Table 6 is related to courses that prepare students for their Master's thesis, such as Research Methods and Research Projects. This category had 61 courses (7.86%).

It was found that the curricular subjects taught in data science programmes have a significant overlap with other programmes, especially statistics and computer sciences. Although data science differs from statistical studies, it still relates to computer sciences. Cruz (2017) argues that the subject of software engineering should be taught in data science programmes, and denounces the fact that most data science courses still lack coverage of specific issues where software engineering can make a significant contribution to the field of data science. Engaging in data science requires the student to have in-depth knowledge of some software programming. The most popular programming languages used are Python and R in data science courses. Because there is a growing demand for data scientists and data analysts, graduate students pursue careers in academia or various sectors of industry.

In the main, data science students must be familiar with topics related to mathematics, statistics and computer algorithms. As reported by Alarcón-Soto et al. (2019), data scientists should be equipped with statistical and computational competences, paired with domain knowledge, so that they can analyse and interpret raw data and assist in decision-making processes. The data science programmes in the present study included a set of core and elective courses related to these topics, especially in the fields of 'Foundations of mathematics' and 'Principles of statistical thinking' (see Table 6). In support of this view, Topi suggests:

> A degree in data science should develop competences in broad areas of statistics (including statistical inference), research design, predictive modeling, visualization and visual analytics, computational/algorithmic thinking, programming, machine learning, data and database management including distributed and parallel technologies suitable for varying volumes and types of data, data mining, domain knowledge, and ethics and implications of analytics. (Topi, 2016: 27)

Regarding the structure of the data science curriculum, the courses required by Bachelor's degree programmes in Data Science include Probability and Statistics, Data Mining, Discrete Mathematics, Data Structures and Algorithms, and Database and Machine Learning (Thomas and Urban, 2018). As a multidisciplinary field at the intersection of computing, applied mathematics and statistics, it is often assumed that students need a strong background in these areas before they can receive any introduction to data science. It is believed that data science education must start early, and that students should be engaged in the complete data analysis process, from data collection to modelling, analysis and interpretation, beginning in their first or second year of study (Johnson, 2018).

Conclusion

A large amount of data is produced in various domains in our communities. Such data needs to be analysed and managed so that we can extract the desired knowledge from it. However, managing the vast and complex amounts of data is a real challenge for organizations worldwide, especially in the Middle East, as this region is ideologically, geographically, ethnically and culturally diverse on all levels. Based on this, the science that is capable of dealing with such data is data science, where advanced analytics, algorithmic techniques, computer-based systems and processes are used to extract valuable information from data and, ultimately, present it to decision-makers (Calzon, 2021).

The primary aim of this study was to understand the reality of data science education in Middle Eastern institutions in order to determine the opportunities and challenges involved in teaching data science in the region. The study surveyed 48 data science programmes and courses offered at different faculties and schools in the region using the material available on their websites, such as programme names, programme descriptions, course catalogues, curriculum structures and course objectives.

The data science programmes are striving to address the anticipated need for data scientists in the Middle East. Data science programmes are a modern and growing phenomenon in Middle Eastern institutions. The current study has therefore attempted to reveal the dimensions of data science education in the region, and it should be noted that the number of data science programmes is expected to proliferate in the future. It should also be presumed that data science education programmes in the region are still in the early stages of development, and it is expected that these programmes will become more interesting through the establishment of more departments or schools that offer data science programmes from various perspectives and work to implement the applied aspects of this science, especially in solving real-world problems. However, the political instability and regional conflicts that are being witnessed in some Middle Eastern countries may explain the lack of data science programmes in educational institutions. In addition, the Middle East region remains a hotbed of political events and conflicts, and there is a lack of infrastructure in some countries that are experiencing long-standing conflicts and civil wars, such as Iraq, Lebanon, Libya, Palestine, Syria and Yemen (Cochran, 2018; Sørli et al., 2005).

Song and Zhu (2017) report that data scientists should be able to understand the roles of big data technologies; work in all the stages of the data science cycle, from discovering problems to providing appropriate solutions; and use the various tools of data science to solve big data problems. With regard to the data science courses offered by universities, Cao (2018) argues that most data science courses are a relabelling and combination of existing subjects related to computing and informatics, business and information technology, or, specifically, that these courses may represent a combination of statistical analysis, data mining, machine learning and programming. He questions whether such courses are enough to constitute an integrated data science course that will qualify the next generation of data scientists. It is assumed that data scientists and data analysts are qualified to work in all operational sectors of society, be it business, health, education or any sector dealing with data that needs to be transformed into reliable knowledge for rational decision-making.

The demand for data scientists will continue to grow in the future because various companies worldwide are changing their strategies with regard to dealing with big data. For example, companies with recommendation systems like Netflix have seen more clicks and views after adding machine learning and statistical analysis methods to their strategy. Additionally, companies like Amazon have seen more revenue after investing more in data-driven methods for advertising (Malas, 2022).

There are some limitations to the present study. The first is related to the exclusion of data science programmes based on online courses offered by MOOC platforms, such as Coursera, Simplilearn and Le Wagon. The second limitation concerns excluding data science programmes that did not provide enough information on their websites – for example, the Bachelor of Science in Information Technology: Data Science and Artificial Intelligence path offered by King Saud University, Saudi Arabia. Indeed, two programmes were excluded from this study as there was not enough information about them – the Data Science and Internet Technologies programme introduced by Bar-Ilan University, Israel, and the Data Science programme offered by the Lebanese University.

This survey study contributes a basic understanding of the current situation of data science education in the Middle East, and offers some recommendations for the future development of data science education in the region. As data science is an interdisciplinary field, teaching programmes should reinforce basic skills, with an emphasis on statistics, data analysis, data visualization, data mining, data analytics and machine learning. The study recommends that when designing Bachelor's data science programmes, the job market in the Middle East must be considered. In other words, the need for data scientists and data analysts in the region must be identified from the point of view of the job market. This issue must also be considered when deciding whether to establish new postgraduate programmes in the future. Higher education institutions in the Middle East should carefully and continuously monitor local and national job markets for data scientists. Although some Middle Eastern universities have programmes in data science, as mentioned in the current survey, the following question still needs to be answered: Are the data science programmes able to meet the market's needs for data scientists and data analysts in the region?

In addition to the data science programmes surveyed in the current study, self-learners can brush up on their skills and knowledge of statistics, programming and data analysis through engaging in online data science courses on various educational platforms (e.g. MOOCs). Future studies might focus on the role of librarians in the data science movement as data science and big data lend themselves readily to research applications in a variety of fields, and can be used with machine learning techniques to learn, for example, how to cluster, make recommendations and predict outcomes based on data.

In order to plan for data science education in LIS schools in the Middle East, it is important to develop framework models and curricula based on the best practices of LIS schools that have already launched data science programmes. Finally, topics such as teaching data science ethics and data literacy in data science programmes could be considered in future studies. Moreover, one issue that could also be highlighted is how COVID-19 has affected data science education worldwide. Another proposed idea would be to discuss the role of data science techniques in tackling the Coronavirus pandemic.

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Appendix 1

Middle Eastern institutions with data science programmes

Country		Institution	Faculty/school	Discipline	Programme name	Degree	Credit hours
Bahrain	University of Bahrain	College of Science and College of Information Technology in collaboration with Liverpool John Moores University	Science and technology	Big Data Science and Analytics	Master of Science	36	
Cyprus	University of Central Lancashire Cyprus	School of Sciences	Science and technology	Data Analytics	Master of Science	0	
	Cyprus International Institute of Management	Graduate programmes	Management	Business Intelligence and Data Analytics	Master of Science	90	
	Cyprus University of Technology	Faculty of Engineering and Technology	Electrical engineering, computer engineering and informatics	Data Science and Engineering	Master of Science	0	
	University of Cyprus	None	Computer sciences	Data Science	Master of Science	90	
	University of Nicosia	None	Computer sciences	Data Science	Master of Science	90	
	Cyprus Institute	None	Computer sciences	Simulation and Data Science	Master of Science	90	
Egypt	Nile University	School of Information Technology and Computer Science	Computer sciences	Big Data and Data Science	Professional Diploma	36	
	American University in Cairo	Undergraduate programmes, School of Science and Engineering	Science and technology	Data Science	Bachelor of Science	130	
	German University in Cairo	Faculty of Media Engineering and Technology	Computer sciences	Data Science	Professional Diploma	30	
United Arab Emirates	Middlesex University Dubai Campus	Science and Technology	Computer engineering and informatics	Data Science	Master of Science	0	
	Abu Dhabi School of Management	Graduate programmes	Business sciences	Business Analytics	Master of Science	33	
	Rochester Institute of Technology Dubai	Graduate programmes	Professional studies	Data Analytics	Master of Science	33	
	Heriot-Watt University	Graduate programmes	Computer sciences	Data Science	Master of Science	0	
Iran	Tehran Institute for Advanced Studies	None	Computer sciences	Data Science	Master of Science	32	
Israel	Interdisciplinary Center Herzliya	Efi Arazi School of Computer Science	Computer sciences	Machine Learning and Data Science	Master of Science	36	
	Interdisciplinary Center Herzliya	Arison School of Business	Business sciences	Artificial Intelligence and Big Data Specialty	Master of Science	0	

(continued)

Appendix 1. (continued)

Country		Institution	Faculty/school	Discipline	Programme name	Degree	Credit hours
Jordan	Jordan University of Science and Technology	Computer and Information Technology	Computer sciences	Data Science	Master of Science	34	
	Princess Sumaya University for Technology	King Hussein School of Computing Sciences	Computer sciences	Data Science	Master of Science	34	
	Talal Abu-Ghazaleh University	College for Innovation	Business administration	Data Analytics	Master of Science	42	
	University of Jordan	King Abdullah II for Information Technology	Information technology	Data Science	Bachelor of Science	132	
	Al-Ahliyya Amman University	Faculty of Information Technology	Information technology	Data Science and Artificial Intelligence	Bachelor of Science	132	
	Isra University	Faculty of Information Technology	Information technology	Data Science and Artificial Intelligence	Bachelor of Science	135	
Lebanon	Saint Joseph University of Beirut	School of Engineering	Engineering and technology	Data Science	Master of Science	120	
	Saint Joseph University of Beirut	School of Science	Engineering and technology	Data Science	Master of Science	120	
	American University of Beirut	Suliman S. Olayan School of Business	Business sciences	Business Analytics	Master of Science	30	
	American University of Science and Technology	Centre for Learning and Development	Science and technology	Data Science and Big Data	Professional Diploma	21	
Oman	Global College of Engineering and Technology	None	Engineering and technology	Data Science	Master of Science	120	
	Sultan Qaboos University	College of Science	Computer sciences	Data Science and Machine Learning	Master of Science	0	
Palestine	Birzeit University	Graduate Studies	Computer sciences	Applied Statistics and Data Science	Master of Science	36	
	Arab American University	Graduate Studies	Natural sciences, engineering and technology	Data Science and Business Analytics	Master of Science	36	
Qatar	Hamad Bin Khalifa University	College of Science and Engineering	Health sciences	Data Analytics in Health Management	Master of Science	33	
	Hamad Bin Khalifa University	College of Science and Engineering	Engineering sciences	Data Science and Engineering	Master of Science	33	
	University of Doha for Science and Technology	School of Business Management and Information Technology	Information technology	Data Science and Artificial Intelligence	Bachelor of Science	0	

(continued)

Appendix 1. (continued)

Country		Institution	Faculty/school	Discipline	Programme name	Degree	Credit hours
Saudi Arabia	Princess Nourah bint Abdulrahman University	College of Computer and Information Sciences	Computer sciences	Data Science	Master of Science	54	
	Princess Nourah bint Abdulrahman University	College of Computer and Information Sciences	Computer sciences	Data Science and Analytics	Bachelor of Science	127	
	Prince Sattam Bin Abdulaziz University	College of Computer Engineering and Sciences	Computer sciences	Data Science	Master of Science	42	
	Saudi Electronic University	College of Computing and Informatics	Computer sciences	Data Science	Master of Science	36	
	Jouf University	College of Computer and Information Sciences	Computer sciences	Data Science	Master of Science	33	
	Islamic University of Madinah	Faculty of Computer	Computer sciences	Data Science	Master of Science	34	
	Majmaah University	Computer Sciences and Information Technology College	Computer sciences	Data Science	Master of Science	39	
	Shaqra University	College of Computing and Information Technology	Computer sciences	Data Science and Artificial Intelligence	Master of Science	38	
Turkey	İstanbul Şehir University	Graduate School of Natural and Applied Sciences	Natural and applied sciences	Data Science	Master of Science	120	
	Sabancı University	Faculty of Engineering and Natural Sciences	Engineering and natural sciences	Data Analytics	Master of Science	30	
	Koç University	School of Sciences and Engineering	Sciences and engineering	Data Science	Master of Science	0	
	Istanbul Technical University	Faculty of Management	Business sciences	Big Data and Business Analytics	Master of Science	36	
	MEF University	None	None	Big Data Analytics	Master of Science	0	
	Bahcesehir University	School of Natural and Applied Sciences	Natural and applied sciences	Big Data Analytics and Management	Master of Science	30	

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Examining the status of prison libraries around the world: A literature review

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Abstract
The purpose of this study is to review the published literature and highlight the situation of prison libraries around the world. The study strives to adopt a comprehensive approach while reviewing the literature in order to survey the present status geographically. The available published literature on prison libraries in local and international library and information science journals has been reviewed. The researchers also consulted other sources, such as books, theses, dissertations, conference proceedings, library websites, individuals and professional organizations, including the American Library Association, Association of College and Research Libraries, and IFLA. The databases used included Library and Information Science Abstracts, Library, Information Science and Technology Abstracts, Emerald, JSTOR, Google Scholar and ResearchGate. The keywords used for searching can be categorized as ‘prison libraries’, ‘jail libraries’, ‘correctional institution libraries’ and ‘rehabilitation centres’. Overall, findings suggest that the situation of prison libraries in USA, UK, Europe and Asia (only urban areas) is much better as compared to the other regions of the world. This situation is because of the availability of resources, access to the Internet, technology, automated catalogues, cooperation with other libraries such as public libraries, and regular budgets to run library affairs smoothly. A lack of professional staff, the unavailability of library space, limited collections, censorship issues, a poor budgetary situation, the absence of library associations in developing countries, and a lack of cooperation among prison libraries and public libraries are the major causes of the current situation of prison libraries. The study is unique in nature as it highlights the situation of prison libraries worldwide through a wide lens, focusing on standards, services and difficulties, as well as recommendations made by the researchers.

Keywords
Prison libraries, jail libraries, correctional institution libraries, rehabilitation centres

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Introduction

Humans are different in their nature and behaviours; for intentional or unintentional reasons, they commit serious crimes without realizing the consequences (Emasealu and Popoola, 2016b). To counter such behaviour, organizations and institutions formulate rules and regulations to mitigate crime and penalize, as well as reform, culprits. Albert (1989) comments that people consider prisoners to be societal enemies and, due to this prevailing perception, prisoners are not receiving due attention from people in the free world. Like other human beings, prisoners have similar fundamental rights, including getting a good education. In early times, prisons were established solely for punishment and to counter criminal activities. This perception is slowly changing around the world. It is strongly felt that instead of punishing prisoners, prisons could also be used as places where inmates are rehabilitated and then sent back into society as functional human beings (Doyle, 2013; Floch and Casey, 1955; Fyfe, 1992). It is generally accepted that learning and keeping up to date with current information is a continuous practice, regardless of sex, age, religion, ethnicity and colour. Everybody wishes to make reasonable and informed personal decisions, even if they are held in confinement (Busayo, 2012). When a convict enters prison, his first thought, 'as he sees and hears the gates close around him, is of escape' (Sullivan, 1998: 113). Entering the world of reading is a basic technique to help prisoners escape from the closed gates. It equips individuals with sufficient skills to live in the free world (Glaser and Glacier, 1958).

Worldwide, prison libraries provide inmates with equal access to educational, recreational and rehabilitation programmes. The global literature evidences other related terms for 'prison' libraries, such as 'jail', 'correctional facility', 'detention centre' and 'house of correction'. Knudsen (2000) argues that inmates consider libraries as their friend, despite this terminology. Reflecting on his experiences, he states that he would not have tackled difficult life situations without the help of a library. London (2000) established that inmates believed that people moved ahead with advanced technology in the outside world. They thought that they would not be able to fill this gap in their lives without libraries. Prison libraries provide the opportunity to complete an education and for personality growth, and simultaneously fulfil leisure needs (Sulé and Comalat, 2008). Reading – specifically leisure reading – is a sign of freedom for prisoners. Leisure as well as academic reading helps prisoners to forget about their miseries and caged life (Little, 1998). The library can play a vital role in reducing prisoners' isolation while connecting them to the information world and positively changing their lives (Casey, 1958; Clark and MacCreaigh, 2006; Marshall, 2011). The prison library links prisoners and the outside world, ultimately benefiting society (Kaiser, 1993). Moreover, better services for inmates in prison libraries can improve their behaviour and public safety (Stearns, 2004). Catering to the information needs of inmates may help with their re-entry into society (Eze, 2016). Previous studies have found that inmates' information needs relate to their continuing professional training, career opportunities, family relationships, housing and sources of income (Emasealu and Popoola, 2016; Jacintha, 2016).

Stevens and Usherwood (1995) have shown that library services engage prisoners with information, provide an opportunity to acquire practical skills, and change their attitudes and behaviours in a positive way. Furthermore, researchers (Coyle, 1987; Dixen and Thorson, 2001) consider prison libraries as valuable societal institutions and rehabilitation centres that help prisoners strengthen their character and reduce the rate of recidivism (returning to prison).

Statement of the problem

The role of a library in today's society is vital as it is considered as a third place between home (first place) and work (second place), and people like to spend time in a third place for entertainment, information seeking and research (Houpert, 2020). Much literature was found regarding the importance of libraries (especially public libraries) and the development of these important (third) places for members of society. Library professionals have made efforts to transform prisons into more effective places for society members. These efforts include preparing marketing plans for library services and helping users find literature on different social issues, including the psychological needs of patrons (Wahler et al., 2019). A marketing plan for library services ensures linkages between libraries, patrons and society members (Idrees and Rehman, 2009). That being said, prison libraries require a unique set of characteristics, facilities and services for their members, and different marketing plans for their services. The patrons of such libraries have different issues and information needs (Fasae and Folorunso, 2020), but comprehensive literature is not available to understand prison libraries' worldwide infrastructure and issues. The current study will shed light on this area and open avenues for more research in this domain.

The study's main objective is to review the literature and establish prison libraries' goals, and to describe the status, issues and challenges these libraries face worldwide. A thorough reading of the literature enabled the researchers to discover the everyday practices of prison libraries worldwide.

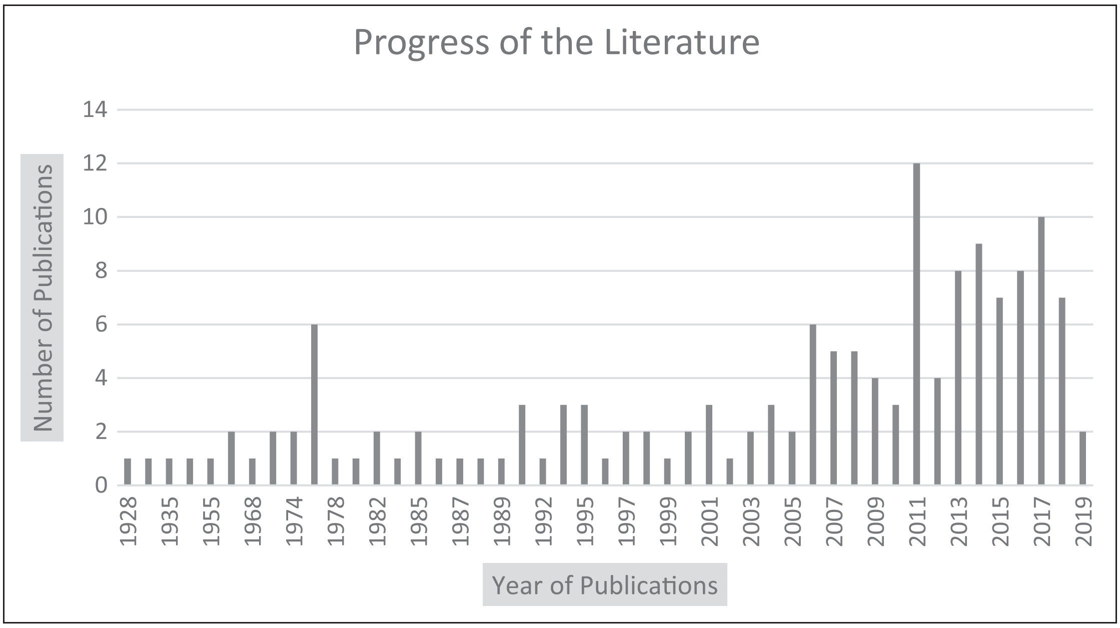

Figure 1. Progress of literature on prison libraries.

Methodology

A systematic literature review requires a transparent and defined protocol (Gough et al., 2017). There are three main advantages of a systematic literature review:

1. It reduces biases and errors, thereby increasing the quality of the review process (Drucker et al., 2016).
2. It safeguards the validity of the findings because the steps can be replicated by others (Siddaway et al., 2019).
3. It synthesizes the knowledge in a particular field (Fisch and Block, 2018).

The majority of researchers use the preferred reporting items for systematic reviews and meta-analysis (PRISMA) strategy to investigate a specific issue in the literature. It is widely used in different fields, such as medical science (Levay and Craven, 2019), environmental science (Wimbadi and Djalante, 2020), education (Davies et al., 2013), computer science (Kolajo et al., 2019) and social sciences (Safdar et al., 2020). For this study, seven steps were adopted from Xiao and Watson (2019) for the review: (1) formulating the research problem; (2) developing the review protocol; (3) screening the literature found; (4) assessing the quality of the literature; (5) retrieving the literature; (6) analysing and synthesizing the literature; and (7) reporting the results.

The selected articles and theses/dissertations were published in local and foreign library and information science research journals. The researchers collected available literature from libraries, the websites of individuals, prison libraries and professional organizations working in this domain, such as the American Library Association, Association of College and Research Libraries, and IFLA. Various indexing services, such as Library, Information Science and Technology Abstracts, were consulted to find the literature.

Once the review strategy was set, a five-step process was performed. In the first stage, a search was carried out in electronic databases such as ProQuest, Emerald Insight, Science Direct, EBSCOhost, Taylor & Francis, SAGE Publications, JSTOR, Eric, ResearchGate, Google Scholar and the Google search engine. The second stage included assessing the studies related to the review strategy. The researchers refined the search based on the types of document, such as journal articles, conference papers, reviews and books. In this stage, the strategy of keeping studies with keywords allintitle was adopted. In the third stage, documents other than those written in English were excluded. Only those studies relevant to the subject area (prison libraries) were included in the fourth stage. And lastly, the researchers excluded duplicate and non-English studies manually from the list. Through this process, a total of 147 studies were selected to review in this study (Figure 2).

Inclusion and exclusion criteria

Studies describing the current status of prison libraries in different areas of the world were included in this research. Another criterion for the inclusion of studies was the publication date – that is, studies published from 1900 to 2019. Two keywords – ‘prison libraries’

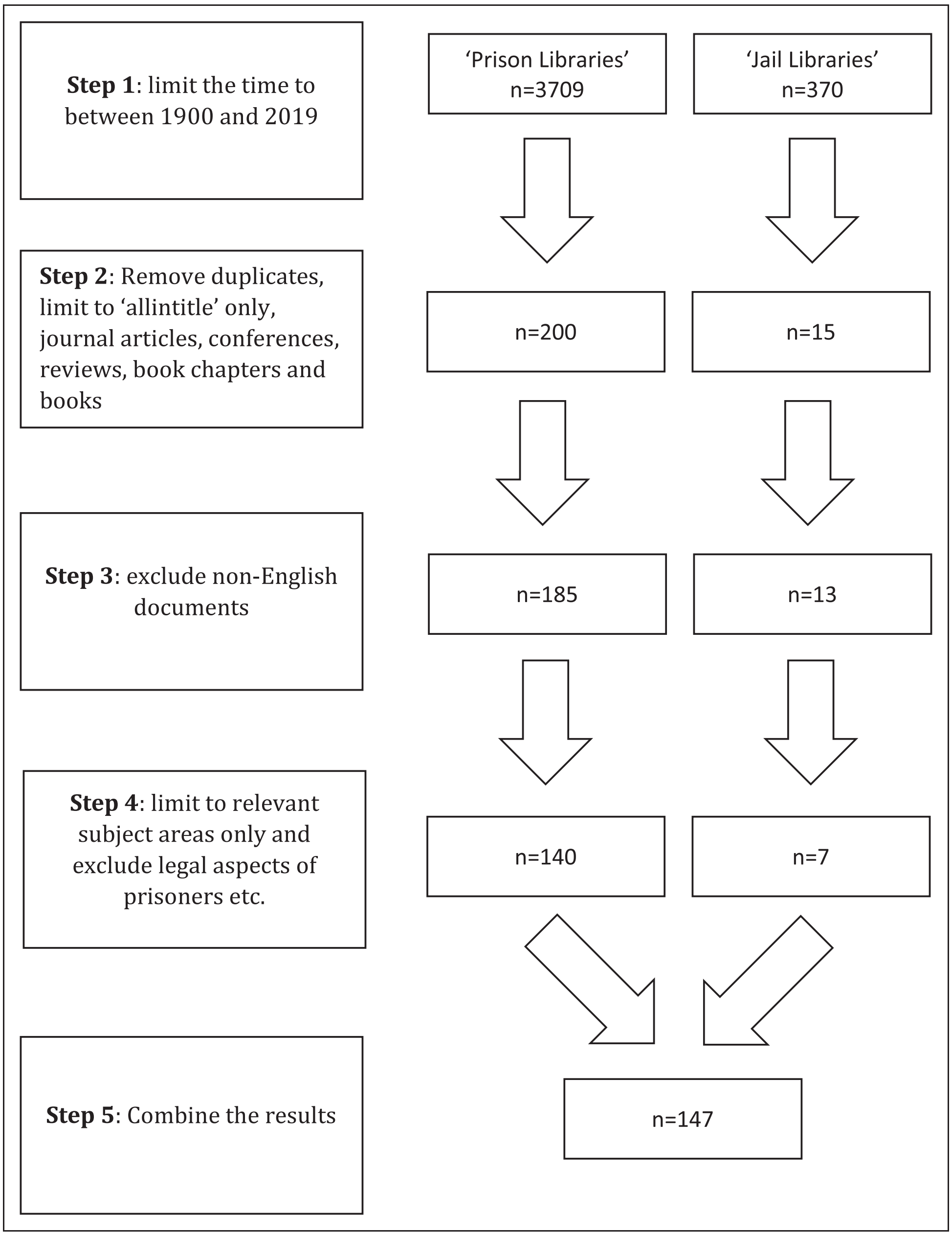

Figure 2. Flow diagram of the systematic review process (the preferred reporting items for systematic reviews and meta-analysis (PRISMA) approach).

and 'jail libraries' – in the title of studies were searched and, additionally, only English-language studies were selected. Finally, duplicate articles and studies other than journal articles, conference papers, reviews, books and book chapters were excluded.

Findings

Philosophy and goals of prison libraries

A review of the literature concerning prison libraries' goals and objectives shows that prison libraries serve five primary purposes worldwide: rehabilitation, education, the provision of information sources and services, health awareness, and the provision of healthy sports activities. As shown in Figure 3, the goals of prison libraries can be categorized into four major groups: personal development, literacy instruction, a peaceful environment and education. Moreover, according to the studies, prison libraries are mainly concerned with the rehabilitation of inmates. These libraries also provide education and desired information sources to fulfil their information needs. In addition, few studies mentioned that health awareness programmes and the provision of healthy sports activities should also be part of prison libraries' services.

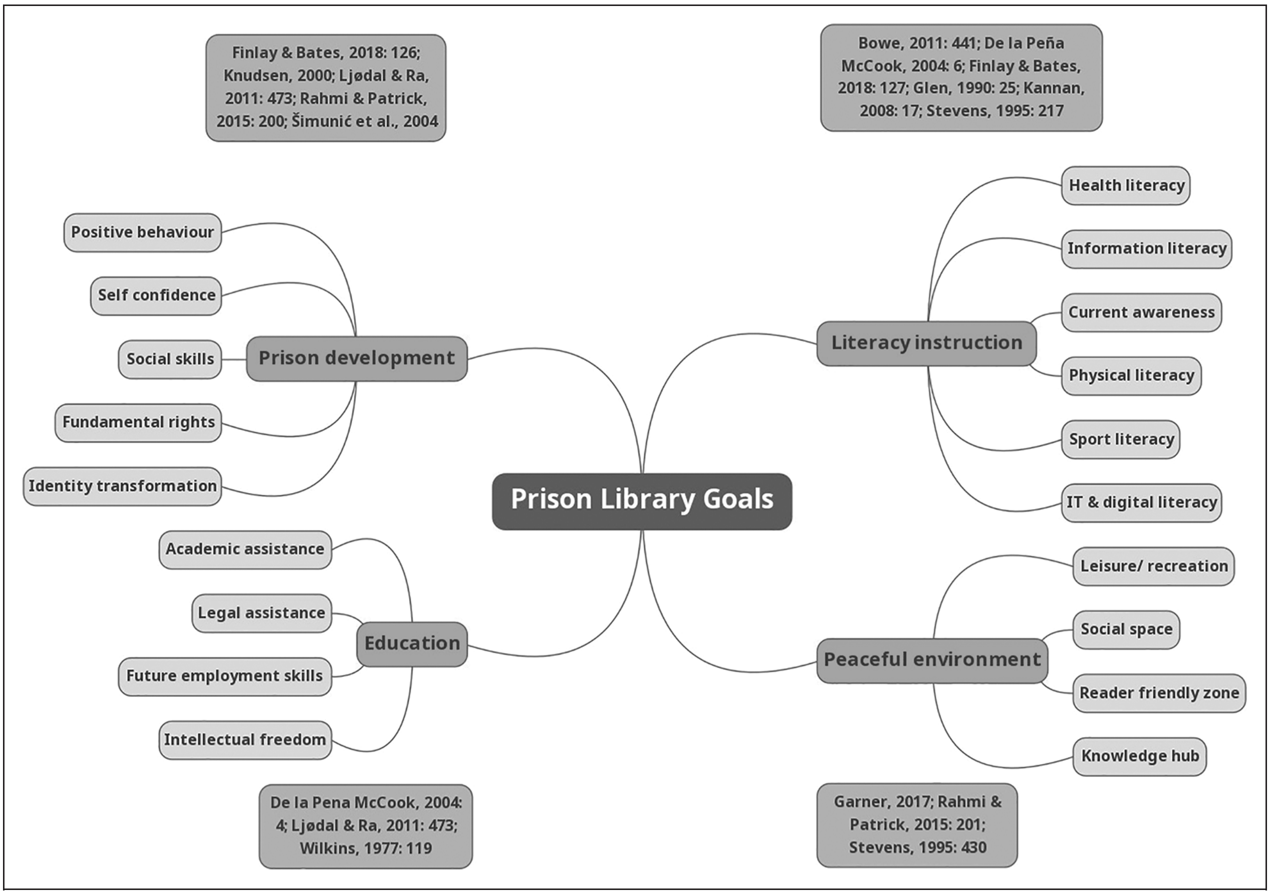

Figure 3. Philosophy and goals of prison libraries.

History of prison libraries

According to Wilkins (1977), the first prison library service in the USA was established in the mid 19th century. The states that initiated this early development were Iowa, Illinois, Nebraska, New York, Ohio and Massachusetts. Their libraries were limited in their collections. Similarly, Stevens and Usherwood (1995) state that the early British prison libraries forced inmates' rehabilitation through religious and moral texts.

Analysis shows that the purpose of prison libraries was to provide reading materials to inmates. Initially, clergy offered these services to inmates for religious reform. The primary aim was to support moral reform through religious material (Collis and Boden, 1997; Garner, 2017; Glenn, 1990). In the 17th century, books were given to American and European prisoners for moral reform. Prisoners were only permitted to read the Bible and other religious books. The prison libraries were staffed by clergy, guards, substitute teachers or bookish inmates, with little or no support from the prison administration (Conrad, 2017; Coyle, 1987; Fyfe, 1992; Garner, 2017).

Heaney (1973) identifies that a prison library was established in Ireland at Richmond General Penitentiary, Dublin, in March 1827. There were 21 books over 2 feet of shelf space. In 1820, the Lord Lieutenant appointed church chaplains to issue appropriate publications to prisoners free of charge. Adkins (2010) points out that, in 1834, the Quaker missionary James Backhouse highlighted that a small library had been established at Port Arthur from donations by private individuals. The government also established a similar library at Point Puer, a neighbouring settlement for juveniles. The regulations of 1843 recommended that stations houses should not assume that libraries would be established for staff. The books were for the use of both the convicts and their goalers.

The literature has established that prison libraries provided religious material to prisoners for their development until the early 19th century (Conrad, 2017; Garner, 2017). This was when the focus shifted towards the public library type of model. By the beginning of the 20th century, many prison libraries had been closed. In 1915, the American Library Association published the *Manual for Institution Libraries*

(Scott 1916) and stated that prison libraries should be developed with the character and purpose of the institution in mind. These prison libraries were run by a teacher with an undergraduate or postgraduate degree. Stout and Turitz (1977) point out that, in 1963, the American Library Association created the Social Responsibilities Round Table, and that illiteracy was a social issue to be addressed for Americans inside or outside of prison walls. It has been recognized that library services should not stop at the prison gates. Lehmann (2011) states that, in 2000, some of the correctional agencies in the USA began converting their print-based legal material into electronic format and made it available on CD-ROMs and DVDs. Today, web-based legal information products are available under a secure network infrastructure in prison libraries.

Kabir (1982) identifies that some attention was being given to jail reforms by the third quarter of the 19th century. By 1892, the prisoners in Bengali jails were being provided with better housing and amenities. In 1890, the government agreed to grant sanction some money to buy books and form a library for the European and Eurasian inmates of the Presidency Jail. The chaplain of the Presidency Jail wanted to utilize the funds to ensure best library practices. His effort to set up a jail library was a small beginning, yet it may be considered of great significance in order to create awareness towards prison libraries. Its importance was that it initiated such institutional libraries. Over time, the government took increased measures to provide reading facilities for certain classes of prisoner in Bengali jails.

Regional distribution of prison libraries

The USA

In the USA, all 50 states have a Department of Corrections which monitors libraries and state correctional facilities. According to the Directory of State Prison Librarians (2010), the total number of prison libraries in all states is 950. Two-thirds of these libraries have professional library staff (Lehmann, 2011). The library facilities, services and collections in the Federal Prison System are controlled by the Federal Bureau of Prisons of the United States Department of Justice. For over 200 years, American prisons have operated library programmes. The challenges of providing resources to the incarcerated are well documented and, today, the American Library Association maintains many resources for those in charge of prison libraries (Tait, 2018).

Men's prisons have a much larger inmate population than women's prisons. Men's prison libraries have more books, magazines and journals than women's prison libraries. Despite this, the state of prison libraries in the USA is different from that in other countries. In the USA, prisoners have access to various books, the Internet and audiovisual material in a few libraries (Glenn, 1990). A survey conducted in 10 major US states highlights that most libraries provide books, magazines and newspapers, and a few are equipped with audiovisual material (Conrad, 2012).

As far as problems are concerned, US prison libraries face budgetary issues similar to libraries in other regions of the world. In Illinois, prison libraries have faced funding, collection development, access, legal material, staffing and many other problems that are common to institutional library services. The majority of the North Carolina state prisons working under the Department of Corrections have sufficient legal and recreational library collections and services (Burt, 1977; Campbell, 2005; Cohen, 1968; Conrad, 2012; Rubin, 1983). Purifoy (2000) reveals that the prison library at the Oshkosh Correctional Institution provides educational and recreational facilities for inmates. The librarian provides inmates with a supportive atmosphere and encourages them to benefit from the services offered. However, this kind of services were missing in rural jails in USA.

Sawyer (1979) notes that correctional institution libraries in Ohio had been growing in number since the early 1970s. He conducted a study of major adult correctional facilities and revealed a need for libraries in prisons, and that most inmates would like to use library materials either for reading for pleasure or educational research. According to Hart (2015), prison libraries and librarians were severely neglected in the library community in Ohio. Public and academic library communities were unaware of the needs and goals of prison libraries. There were eight correctional facilities under the Ohio Department of Youth Services. The prison librarians managed collection development, maintenance, evaluation, networking inside and outside the institution, and daily operations. The Circleville Juvenile Correctional Facility library had 7000–8000 books. Inmates could not use the Internet, but one of the officers helped the librarian to provide Internet access for the youth. The collections included fiction and non-fiction, biographies, foreign languages, science titles, reference books, vocational materials and periodicals. Some libraries managed to subscribe to magazines and newspapers.

Canada

Ings and Joslin (2011) reviewed the literature related to prison library services in Canada from 1980 to 2010. In light of the Canadian mission and goals, several legislative changes have been made over recent years. These changes have directly affected the prison population and libraries in social and technological contexts. Still, the Canadian libraries are not according to the standards suggested in 1981 by Nason. Curry et al. (2003) surveyed Canada's 51 correctional institution libraries and note that prison administration staff, guards, visitors and inmates' families used the libraries; later, inmates' families and visitors were not allowed to use the libraries. A few of the staff members had a Master's degree in Library and Information Science, while others had a Bachelor of Arts degree in Psychology or a technician, correctional educator or teacher-librarian diploma. Every library had books, magazines, newspapers and video collections. Due to security concerns, none of the prison libraries were equipped with Internet access. Most of the libraries acquired books through new purchases and donations. The library collections included general fiction, horror, mystery, science fiction, historical fiction, romance and gay/lesbian fiction.

The UK

Bowe (2011) notes that prison libraries in the UK had seen significant changes and developments over the previous 30 years. As prisoners were not allowed to use local public libraries, the nearest public libraries were contacted to provide adequate library services to prison inmates. However, Coyle (1987) highlights that the use of public libraries was unsuitable for the prison environment. Public libraries meet user needs regardless of censorship issues. However, prison libraries have strict censorship policies for inmates. In the UK, privately managed prisons were introduced in the 1990s. Private companies ran 11 private prisons. Private prisons controlled their library collections and staff. The books needed for the libraries were mainly purchased independently rather than through the library management (Bowe, 2011).

Turner (1973) examined the four prison libraries in the West Riding of Yorkshire. Of the four prisons analysed, only Thorp Arch had a purposeful library. At Wakefield, the library collection was divided between libraries in four wings, consisting of two or at most three cells knocked into one. The prisoners could only use the library in their wing. The library premises were full of dirt, dull and unattractive. The existing collection was minimal. At Askham Grange, the problem of space was much the same as that at Wakefield. At Armley, the library was open each evening, but the men were only allowed one visit a week. All four prison libraries received most of their book supplies through public libraries. Of all four prisons, only Wakefield had a library officer who had received 10 days of training in library procedures. The prison governor monitored the censorship policy in the libraries.

Field (2008) points out that many UK prison libraries were managed by a librarian and contained some literacy material in central display units. This material was used for inmates' formal Individual Learning Plans, governed by the Department for Education. These resources were loaned to literacy teachers from the Department for Education and staff members. He further elaborates that the provision of library services was affected by different factors such as the turnover of prisoners and the quality of collaboration with partners and managers.

Northern Ireland. According to Finlay (2018), access to library services is a legal requirement for each prison in Northern Ireland. The researchers identified some publications on prison library services in the UK but no research has been carried out on prison libraries in Northern Ireland. The limited published work is often based on the researchers' opinions rather than empirical evidence. We cannot blame prison librarians for this as they cannot undertake research alone, and they might not have enough time or resources to carry out such studies.

Prison libraries in Europe

Greece. Villioti and Vassilakaki (2015) investigated prison libraries in Greece and note that the libraries did not operate effectively. These libraries were not staffed by professional librarians but social workers. There was no proper space for users and not even basic furniture in the libraries. There was no organization and classification system for the library material. There was no written policy available about library operations. Only prison staff were allowed to borrow books from the libraries, therefore prisoners did not visit the libraries often. The collections and services provided by the prison libraries did not sufficiently meet users' needs and the libraries were not meeting their educational role appropriately.

Belgium. According to Brosens et al.'s (2015) study, Belgian prisoners were allowed to use the prison library once a week. They could borrow books, CDs, DVDs, video games and comics. The study mentions that the libraries provided opportunities for the prisoners to participate in other lifelong learning programmes such as vocational training and sports.

The Netherlands. Reijnders (1996) notes that, in the Netherlands, many prison inmates were unable to understand Dutch. This isolated them from other prisoners. In contrast to most prison libraries around the world, the Netherlands has legalized the prison library system. In 1841, the Minister of Home Affairs presented a law suggesting libraries for prisoners. This law was amended in 1952 and 1971, granting inmates the right to use a library once a week. As of 1996, the Netherlands had successfully established 70 prison libraries, with 113 librarians working in 52 correctional facilities, 8 forensic hospitals and 16 juvenile detention centres. The number of foreign books in a prison library depends on the percentage of foreign inmates. All the libraries had foreign prisoners, as their circulation statistics showed that members borrowed books in eight different foreign languages. Moreover, the prisons where more than 50% of the inmates were from foreign countries had a library collection with publications in 15–20 foreign languages. Some prison libraries were equipped with even more foreign language publications (up to 36) to meet users' needs.

Spain. There are 84 correctional facilities in Spain, 11 of which are in the autonomous community of Catalonia. All prison libraries in Spain have professional librarians. The prisoners fulfil their information needs by consulting library resources, prison staff, family and friends. They spend their time watching television, reading books and listening to the radio. The main goal of prison libraries is to promote a reading culture and support educational programmes. In Catalonia, the machine readable catalogue (MARC) Instruction Programme for Catalan Prison Libraries was developed in January 2002 to standardize the operations of prison libraries – such as technical services, working hours and staff assignments (Pulido and De Angelo, 2011).

Poland. Zybert (2011) notes that the director general of prison services governed all matters relating to libraries in correctional institutions, such as the allocation of library funds for space, equipment, materials and collections. The main aim of the Polish prison library was to provide services for prisoners' education and rehabilitation. According to a 2008 survey, there were 1,635,466 volumes held in prison libraries. Prisoners could visit the libraries in person but only had indirect access to the library collections due to the lack of library space; they could select books from the short holding lists brought to their living area. There were prison educators or library educators in the libraries instead of librarians, who performed all librarian duties, such as collection development, circulation policies, record maintenance, reporting and the organization of the library space.

Turkey. Dilek-Kayaoglu and Demir (2014) reveal that the Ministry of Justice's directive of 2005 regulates prison libraries in modern-day Turkey. According to this directive, prison libraries can only be established with senior managers. The libraries remain open five days a week but prisoners cannot use them physically due to security concerns. They can only borrow books for up to 15 days from a list of books arranged alphabetically by author. The prison libraries lack professional staff and sufficient reading material, and do not have specific or sufficient budgets for library material.

Croatia. The studies from Croatia show that most of the prisons in Croatia offered primary library services to their inmates. These libraries were not well established and required new organizational and financial infrastructures. In a few libraries, staff members and prisoners could use computers, but without Internet access (Perryman, 2016; Šimunić et al., 2014).

France. Prison libraries in France can be traced back to the mid 19th century. The French Penitentiary Administration regulates their overall structure, the collection of books and other reading material. In 1999, according to the Criminal Procedure Code, a library was the only place designated as a 'cultural space' inside a prison. This code also gave directions in relation to a library's place, functions and access system. However, the code did not specify the location of the libraries. Prison libraries started improving when public library staff began to work inside prisons, reorganizing their book collections (Cramard and McLoughlin, 2011).

Bulgaria. According to Tsvetkova and Andrekova's (2016) study, almost all prison libraries in Bulgaria reported outdated collections. The primary source of their collections was poor-quality donated books. These books were collected from libraries that had closed in various state institutions and publishers. The prison libraries did not have sufficient funds to buy new books. Except for Sofia Prison, all of the prison libraries in the country needed fiction and other types of material. Six of the thirteen prisons – in Belene, Burgas, Bobov Dol, Varna, Pleven and Stara Zagora – needed specialized publications. Except for Sofia, all of the prison libraries wanted new information and communications technologies. The prison library at Sliven also requested an e-book reader.

Portugal. Sequeiros (2018) investigated the status of Santa Cruz do Bispo Prison (a woman prison) in Portugal. It was revealed that reading services provided by library help them in developing a sense of escape, a source of entertainment and building knowledge. The library contained 8000 publications, including books, magazines, monographs and newspapers. The majority of the inmates loved to read popular romantic novels. Instead of browsing the books, the library users sought help from the library staff. The library did not have a book catalogue for searching; the books were arranged on the shelves under subject headings.

Italy. Costanzo et al. (2011) note that the prison library system began in Italy in the 20th century when, in 1933, the librarian Ettore Fabicitti mentioned the existence of prison libraries in a public libraries manual. Turin was one of the first cities to have a prison library, which was established by the city government. In 1988, a library was opened with a limited collection of books in La Valette Prison, with a professional librarian. Today, the professional aspects of prison library services are monitored by the University of Milan and Associazione Italiana Biblioteche. Due to the new Association of Prison Libraries (Associazione Biblioteche Carcerarie), the new prison libraries enjoy more autonomy than the older facilities. Several new libraries have been established in the prisons at Como, Milan, Monza and Volterra.

Scandinavia. Ljødal and Ra (2011) highlight that, in the Scandinavian countries, the existing national policy monitored the services offered in correctional institutions. In Norway, a new penitentiary was introduced in 1851. New reforms in Norway aim to minimize the negative effects of isolation with the help of reading material. Under these reforms, Norway's prison libraries are today functioning within clear statutory parameters. Moreover, appropriate and regular funds have been allocated for prison library collections, services and staff at the national level.

In Denmark, the first prison library was established during the 1860s at Værløse, and a teacher was appointed to manage it. The collections were limited and based on pietistic religious publications from the middle of the 18th century. The libraries continued offering these religious works until the latter half of the 19th century when extensive collections of fiction and non-fiction were introduced.

In 1949, public library experts highlighted that prison libraries were the most neglected area of modern library services in Sweden. In 1958, Sweden introduced a new service structure. According to this structure, municipal public libraries provide their services to prisoners in the jails.

Russia. The libraries in Russian prisons seem to follow the tradition of tsarist prison libraries. These libraries were formed using the old model. The library facilities vary from prison to prison and depend on the interrogator's attitude towards the inmates. According to Mäkinen (1993), the size of the prison libraries' collections was between 2000 and 10000 volumes. Taganka Prison in Moscow had 12,000 volumes and Kresty Prison in Leningrad 7000 volumes. There was more demand for the fiction collection in the Leningrad Prison library. In Lubyanka Prison, the inmates verbally requested new books from the librarian. In Vladimir and Yaroslavl Prisons, a complete catalogue of books was shared with the cells, and the prisoners could order their desired books from the catalogue.

Prison libraries in Asia

Pakistan. The researchers found fewer research articles in this domain from an Asian perspective. Hussain et al. (2019) conducted a study on prison libraries in Lahore and reveal that members of the clergy are the caretakers of prison libraries. Their leading role is to offer prayers as an imam masjid (the title given to the leader of worship in a mosque in a Muslim community). They lead Islamic worship services, serve as community leaders, provide religious guidance and education, and offer rehabilitation programmes to inmates. According to Shinji (2009), 99% of convicted children committed crimes due to poverty in Pakistan. Most young prisoners belonged to the deprived sectors of society and did not have access to education. The literature identifies a great need for formal and informal education and learning opportunities that build literacy, creativity and technical skills among inmates. The lack of professional staff, unavailability of library space, lack of funds, limited collections and censorship issues are the main issues faced by Pakistani prison libraries. The majority of prisoners visit the libraries to seek help in relation to legal matters.

India. In India, few prisons have libraries. These libraries have limited collections and provide poor services to inmates. Thane Central Jail has two small prison libraries for men and women (Mahale, 2016). Anupama's (2001) work provides a history and account of 14 prisons in each of the districts of Himachal Pradesh. Researchers stated that some prison libraries, such as those in the districts of Kangra and Kullu, worked in coordination with the state district libraries and allowed prisoners access to material; however, many others did not.

According to Singh (2014), few prisons in Punjab had good libraries, and most of the libraries had not even subscribed to a single newspaper. He states that Viyyur Central Jail, Kerala, had a separate library building with a collection of over 10,000 books, in addition to newspapers and periodicals, for 800 inmates. The Central Prison library at Poojappura contained 15,000 books. The Noida library in Dasna Jail was stocked with over 4000 titles. Singh (2014) further states that, in Madhya Pradesh, the SC Bose Jabalpur Central Prison library contained history, fiction and law books, among books in other areas. The prisoners could borrow books for 15 days. The officials at the Hoshiangabad Prison stated that the prison sent requests for unavailable books when prisoners asked for them. Amaravathi (2019) notes that the Central Prison was initially established in 1997 at Gandhinagar, Bangalore. Later, in 2000, it was moved to Parappana Agrahara. The library had over 4000 items in its collection, including storybooks, novels, newspapers and magazines.

Sri Lanka. Navaneethakrishnan and Arulanantham (2013) suggest that Sri Lanka should follow the IFLA guidelines to establish prison libraries. The policy should be made at the national level for prison libraries by the National Library of Sri Lanka.

Malaysia. Rafedzi et al. (2016, 2018) point out that juvenile prisoners can avail themselves of the same educational opportunities that anyone can expect in the free world in Malaysia. Male prisoners can acquire formal education and take public examinations under a special programme offered by the Ministry of Education and the Malaysian Prison Department. Prison libraries were used by juvenile delinquents taking national-based examinations. They used the libraries to fulfil their information needs with the help of prison staff, although the prison libraries had limited and outdated collections, and lacked professional library staff. Rafedzi and Abrizah (2014) comment that Malaysian male juveniles considered libraries an ineffective source of information, regardless of their information needs. They preferred the Internet and informal networks among inmates for acquiring the information they needed.

Japan. Nakane and Noguchi (2011) note that there were no functional library spaces or professional library staff in Japanese prisons. The reading material in correctional institutions was placed in several areas, such as the prisoners' living units, work areas and library work areas. The collections ranged in size from 5000 to almost 26,000 items. Inmates were allowed to borrow reading material during their work breaks. Book racks were brought into the living units in movement-restricted areas twice a week. Reference and special materials were present in the libraries and controlled by library staff. It was observed that the libraries provided limited access to reading material. Most of the prison libraries had outdated and irrelevant content. There was no interlibrary loan agreements between prison libraries and public libraries.

Korea. Kwon and Yoon (2009) revealed that there were 47 prison libraries in Korea. These libraries had a limited budget for human and material resources. The prison libraries did not provide enough room for accessing material, with the majority being situated in small spaces. The libraries built their collections with the help of donations from several donor agencies. They had an insufficient number of regular library staff to handle daily library operations. The duties of the non-regular library staff were to carry out simple tasks, such as the circulation of library books. The librarians searched educational resources to meet the needs of the library users. The prison libraries did not have automated systems for library operations such as circulation, acquisitions and book processing. Moreover, there was no policy on borrowing books from external libraries such as local public libraries.

Prison libraries in Australia

The literature revealed that prison libraries were acquiring religious books in Australia (Carroll, Hussain et al. Examining the status of prison libraries around the world 7 2013). The purpose of acquiring these types of books for inmates was to refine their moral character and return them to society. Kern (2007) identified that prison libraries in Austria completely followed article 19 of Human Rights and provide services and full access to learning material which enable them to utilize their leisure time positively.

Prison libraries in Africa

Nigeria. Nigerian prison libraries are in a state of deterioration. The reform process was initiated with the advent of Nigeria's democracy in 1990; however, it has not achieved much in providing library resources for inmates to enhance their psychological well-being (Emasealu and Popoola, 2016a). The libraries contribute to the acquisition of skills and to addressing both the psychological problems and attitudinal adjustment of inmates by helping them to manage their time (Omolola and Roseline, 2018).

Bamgbose (2018) points to the importance of law-related collections – an essential component of prison libraries. The purpose of the prison law library is to provide access to legal information for prisoners. Currently, this kind of library does not exist in Nigeria. Nigerian prison libraries have limited space and are located in small apartments. The poor funding for the libraries, long distance between the inmates' living areas and the libraries, uncomfortable nature of prison and long delays before trial are significant hurdles to accessing the desired information sources. The existing library services, and other facilities such as tables, chairs, shelves and books, do not meet acceptable standards (Adeagbo et al., 2016; Emasealu and Popoola, 2016a, 2016b; Eze, 2015, 2016; Eze and Dike, 2014; Joseph and Olayinka, 2019; Okwor et al., 2010; Oluwadare and Elaturoti, 2016; Omagbemi and Odunewu, 2007; Sambo and Ojei, 2018; Sambo et al., 2017).

Uganda. Two women's prisons Luzira and Kigo had small libraries situated outside the perimeter fence (Asiimwe and Kinengyere, 2011).

Ghana. The prisons in Ghana do not have state-of-the-art libraries. According to Mfum (2012), these libraries had basic religious and preparatory reading material. The prison authorities were working on delivering standardized library services to the prison population. The collaboration of prison libraries with public libraries was one of the main tasks to raise the status of prison libraries.

Prison libraries in the Middle East

Jordan. According to Jadallah et al. (2019), there were 17 prison libraries in Jordan. Prison inmates needed different libraries to obtain information and improve their knowledge. Currently, these libraries face a shortage of financial support and a lack of qualified and trained clerks. They are using automated systems for the circulation of library materials. The librarian must prepare a daily list of the library assets, indicating the borrowed books, and send a copy to the secretaries of the internal gate for acquittal of prisoners who are good library users can get early release based on their good behaviours.

Prison libraries in other countries

The Brazilian penitentiary system has limited library collections and space for meeting the needs of the inmates (Andreoli et al., 2014). Uganda also lacks developed prison library services. According to the office of the auditor general, Uganda prisons service (2010), 80% of the 222 prisons had inappropriate educational facilities, including libraries.

Like Malaysia, in Indonesia, the main aim of correctional services is to work for youth development. As reported by Rahmi (2015), the prison libraries in Indonesia contained comprehensive library collections. However, these libraries helped prisoners to improve their reading skills in collaborated with public libraries. Indonesian prison libraries did not permit prisoners to borrow library books because inmates damaged books and used them for illegal purposes, such as hiding tobacco.

Navaneethakrishnan and Arulanantham (2013) suggest that Sri Lanka should follow the IFLA guidelines to establish prison libraries. The policy should be made at the national level for prison libraries by the National Library of Sri Lanka.

In New Zealand, the small North Island town of Whanganui provides services to inmates in two different ways. A mobile library service visits inmates twice a week and also a self-care unit. Whanganui inmates have direct access to the Whanganui District Library (Vaccarino and Comrie, 2010).

Major issues and challenges for prison libraries around the world

Library collections

Prison libraries should not rely on donated or gifted material. The authorities of correctional institutions should realize that prison libraries must acquire specialized selected materials to cater for the needs of today's prisoners (Albert, 1989). Collection development should be based on the prisoners' particular needs and interests. It has been found that prison libraries are consulted more than public libraries in the free world (Kaiser, 1993). Usually, prison library users come from diverse backgrounds and have different interests when reading library material. For this reason, libraries have to acquire library material in different subject areas – for instance, prisoners want to read fiction. Professional library staff should fulfil their information needs (Dalton, 1988; Heie, 1986). Another important type of library material is ready reference sources: almanacs, encyclopaedias, dictionaries, directories and law-related databases such as LexisNexis. The general reading collection should include fiction, non-fiction, newspapers and magazines. The non-fiction material should be in the areas of biography, art, medicine, psychology, religion, true crime, sports, writing, bodybuilding and self-help. If English is the official language, the collection and services will cater for English-speaking prisoners. This is no doubt a major barrier to improving the status of non-English-speaking prisoners (Conrad, 2012; Shirley, 2006). Dalton (2013) points out that library services or resources for legal purposes were not mentioned clearly in collection development policy.

According to Bowe (2011), a library collection should be based on the needs and interests of the inmates. In the Netherlands, for example, many prisoners cannot understand Dutch, which isolates them when they are behind bars (Reijnders, 1996). However, prison authorities, religious organizations, non-governmental organizations and related individuals put efforts into meeting prisoners' information needs by acquiring needs-oriented material (Emasealu and Popoola, 2016b; Eze, 2015, 2016; Eze and Dike, 2014; Oluwadare and Elaturoti, 2016). Library material such as books, magazines and newspapers should be in various formats according to the requirements of the prisoners.

In 2012, Conrad surveyed the US prison library sector. He notes that 24% of libraries had not established a written collection development policy, and at least 53% of libraries had no circulation policy statement. As a result, these libraries were running with non-standardized local policies and procedures of the prison department. According to Lehmann (2011), in the USA, the Wisconsin Department of Corrections policy was established in 2009 to formulate uniform guidelines for acquiring, selecting and weeding library collections in institutional libraries. These guidelines monitor the relevance of library collections for prisoners' needs and interests around the security needs of the institution. Perryman (2016) notes that only two libraries had established a collection development policy in Croatia, and almost half of the prison libraries contained donated reading material.

Haymann-Diaz (1990) explored how the Hispanic and African Ethnic Collection was developed in the library at Greenhaven Correctional Facility in Stormville, New York. The first criterion in selecting material was to represent the historical and cultural context of the various nationalities that comprise Black and Hispanic cultures in the USA. The second criterion was to choose books suggested by the prisoners. The general collection also contained periodicals related to current Hispanic and Black matters. Moreover, the prison library requested material other than books, including posters, maps, paintings, and pictures of artefacts and historical sites.

According to Purifoy (2000), patrons could borrow two books through interlibrary loans for one week at the prison library in the Oshkosh Correctional Institution. The library collection included reference books, audiovisual material, newspapers and magazines. Knudsen (2000) points out that some inmates used the prison library for reading newspapers and books to keep themselves informed and up to date with the outside world. This library contained western literature, and publications in science fiction, religion, adventure, romance, fantasy and even self-help. London (2000) found that at Oakhill Correctional Institution in Oregon, Wisconsin, prisoners read various ethnic periodicals. The library helped them to connect with their culture of origin. According to Ljødal and Ra (2011), most prisoners, including the illiterate, requested audiobooks in Norway. In Denmark, the Ministry of Justice appointed individuals who suggested that prison libraries should be structured as branches of local public libraries, and that the existing book collections should be replaced by deposit collections given by the public libraries. However, handbooks, reference works, magazines and books on hobbies should remain in the collection at the permanent sites.

Prison libraries in Brazil have small collections of books and cannot be considered libraries (Da Costa, 2003). He also revealed that the correctional institution in the state of Rio de Janeiro (Brazil) had no library in Japan, most of the prison library material is acquired by inmates or through gifts (Nakane and Noguchi, 2011). In Uganda, prison libraries have inadequate African literature. The material includes the Bible, novels, storybooks, syllabus books, Uganda National Examination Board textbooks, teacher guidebooks, reference material and pamphlets (Asiimwe and Kinengyere, 2011). In prison libraries in western North Carolina, USA, the books include romantic novels, popular fiction and the Bible. Many of the books are donated by the friends and families of the inmates, library groups and prison staff (Ellern and Mason, 2013). In Turkey, a limited collection of books is available in prison libraries for prisoners (Dilek-Kayaoglu and Demir, 2014). The material in Nigerian prison libraries includes books, magazines, newspapers and audiovisual material, and the available information resources are outdated (Eze and Dike, 2014). Prison libraries in Ghana mainly house arts, science and technology, business, technical and vocational material (Mfum, 2012).

In Indonesia, prison libraries acquire books in the form of gifts or donations. Most of the prison libraries contain books in both print and electronic formats. The major reason for the poor condition of prison libraries is the absence of improved standards for libraries. There are no written selection policies for gifted or donated books to offer guidance to library officials in establishing a library with a relevant and balanced collection (Rahmi, 2015). According to Singh (2014), Indian prison libraries have a limited number of gifted books. The Thane Central Jail library contains books in Marathi, Hindi and English (Mahale, 2016). In Pakistan, prison libraries have gifted books in Urdu, English, Punjabi and Arabic (Hussain et al., 2019). Like other countries, Sri Lanka's public libraries are formulating policies to provide mobile libraries and reading camps for prisoners in order to improve their access to information (Navaneethakrishnan and Arulanantham, 2013).

It has been identified that the collection situation is better in those regions where prison library legislation has been passed (e.g. in some states in the USA and some European countries). Worldwide, most prison libraries, including in the USA, Europe, Asia and Africa, do not have updated collections and are equipped with religious, fiction and non-fiction collections. Similarly, due to budgetary issues, libraries lack audiovisual material globally.

Staffing

There are clear guidelines for prison library staffing levels and their qualifications in the British Guidelines for Prison Libraries, US Library Standards for Adult Correctional Institutions and the 'IFLA guidelines for library services'. According to the 'IFLA guidelines', a prison librarian must hold the required library and information science qualification. They should have the necessary capabilities and skills to work on prison premises, and be aware of the immediate and potential needs of the prisoners (Lehmann, Vibeke and Joanne Locke, 2005). Bowe (2011) highlights that, according to the Library Association's 1997 *Guidelines for Prison Libraries*, a professional librarian, prison officer and library ordinals should be included in the library staff. The 2005 Offender Library, Learning, and Information Specification recommended the minimum staffing levels for prison libraries. It was later updated in May 2010 as the Prison Library Specification. Bowe (2011) also mentions that the minimum qualification for a librarian in public libraries or prison libraries in the UK is to possess a degree in Librarianship or Information Management affiliated with the Chartered Institute of Library and Information Professionals. According to Northwestern University's Pritzker School of Law (1943), the librarian played the role of mentor at the library in the penitentiary of New York City.

The presence of a professional librarian had a noticeable positive impact on libraries, according to Lucas (1990) and Rubin (1982). It has been observed that ambitious library professionals avoid joining prison libraries because of the poor working conditions, isolation, lack of job mobility or career ladders, poor pay and salary inequities, stigma within the profession and their ambiguous role. According to Finlay (2018), prison librarians have the added challenge of providing services in institutions where policies constantly change. In Northern Ireland, the prison libraries are short-staffed and under-resourced; censorship is often a necessity; and inmates rarely have enough access to the information they want or need.

Shirley (2006) describes that, in the USA, the majority of prison libraries have one library professional, who performs all the duties in the library such as library management, services and processes. According to the instructions of the prison officials, a professional librarian should hold a degree in Library and Information Science or an undergraduate degree. King (2006) identifies that library professionals were motivated to pursue a career in prison librarianship with the Ohio Department of Rehabilitation and Correction – 65% of the participants were satisfied with their job.

According to London (2000), the United States Standards provide particular specifications for the education and experience of prison library staff. The library director should hold a Master's in Library and Information Science or equivalent with an American Library Association accreditation and have two years of professional experience in a library. This individual should be familiar with all aspects of library management. According to the Standards, the number of prison library staff should be in accordance with the size of the institution, and they should have the skills to work in a prison environment. The British guidelines stipulate that the librarian must be an authorized member of the Library Association and Prison Libraries Group of the Library Association (Lehmann, 2011). The head librarian must be a member of the prison management team, and their duty is to supervise library affairs. The prison library officer should have the capacity to handle security issues while performing library functions.

Rubin (1983) identifies some of the qualities of a professional librarian, such as being highly sophisticated, adaptive in nature and able to act as a change agent. They should be open to new information and concerned with the library service's goals. They should possess patience, maturity, emotional security, good communication skills and professionalism. Ljødal and Ra (2011) describe that, in Norway, the prison librarian identifies the information needs of the prisoners. The clergy must provide library services while prison inmates work as supporting staff to guide readers. In Denmark, professional librarians from the public library sector provide library services, especially lending services. Ellern and Mason (2013) reveal that the western North Carolina prison libraries had qualified librarians.

Dilek-Kayaoglu and Demir (2014) reveal that the Ministry of Justice (2005a) provides clear directions for library staff in Turkey. According to these directions, the librarian is accountable for all library affairs. If a librarian is not available, a prison teacher will look after all library affairs; in their absence, one of the correctional personnel will be in charge of all library affairs. The Ghana Prisons Service does not have professional librarians (Mfum, 2012). In Japan, professional librarians do not work in prison libraries. The reason behind this is that the current Japanese law does not have clear instructions for prison libraries and their services for inmates (Nakane and Noguchi, 2011). The majority of Canadian prisons have professional librarians. However, it was also found that these librarians, on the whole, appear to be poorly informed about existing selection tools and the use of selection criteria (Ings and Joslin, 2011). Da Costa (2003) mentions that Brazil does not have qualified library professionals in prison libraries. Rahmi (2015) reports that professional library staff are available in Indonesian prison libraries. In Croatia, prison libraries are not managed by professionals (Šimunić et al., 2014). According to Singh (2014), prison libraries are run by non-professionals in India. It is a similar situation in Pakistan, where members of the clergy are in charge of libraries (Hussain et al., 2019).

The major hurdles to pursuing a career in prison libraries, as discussed above, are limited opportunities for innovation and advancement, the lack of financial resources to establish libraries, fewer library staff positions in prison libraries and the absence of technology. Again, the question of prison library legislation is essential here. Countries with regulations are bound to hire professional staff to run their prison libraries – good examples are Norway and Spain. Initially, clergy and religious leaders were considered suitable for prison library management, and this situation is still prevalent in most Asian countries.

Funding

Funding plays a vital role in delivering prison library services to inmates (Dalton, 1988). Shirley (2006) reveals that, in US prison libraries, the library programmes are funded by the Inmate Welfare Fund, but whenever there are budget constraints, officials cut inmates' library and education budgets. This approach has directly affected existing library services. In several cases, librarians have demanded additional funds for their libraries, and succeeded. Kaiser (1993) notes that there should be an annual budget for prison library collections. There must be a separate budget for facilities, associated personnel and library equipment.

Several studies highlight that one of the major causes of the poor nature of services in Turkey, Japan, Nigeria, Ghana, Pakistan and India is the absence of vital resources such as budgets or funding on an annual basis. The Indonesian government provides funds to prison libraries but this budget is still not enough to fulfil their needs (Rahmi, 2015). Another major hurdle in Indonesian law is that government organizations cannot receive donations. Šimunić et al. (2014) report that prison libraries are not being funded regularly by the government in Croatia. According to Liggett (1993), an adequate budget is available for prison libraries in Ohio.

Bowe (2011) notes that prison library services are being provided by 64 local authorities in England and Wales. This arrangement is accomplished through a service level agreement with each prison, using onsite local authority librarians financed by ring-fenced funding by the Department for Business, Innovation and Skills via onsite emergency team (OSET). Additional funding is used to purchase books and other library materials, as well as associated off-site services to maintain and update the stock. Ljødal and Ra (2011) noted that in 1976, the Prison Board and the Norwegian Directorate for Public Libraries commissioned a national survey on library services in Norwegian prisons, which was to serve as the basis for new proposals to reorganize these services. The survey showed that 77,000 Norwegian kroner were allocated for the purchase of books for the libraries. At the largest institutions, however, the funds were also used to pay inmate library workers, which left no money to update the collections. The majority of libraries had a large number of books but they were mainly outdated titles (Ljødal and Ra, 2011). Almost all parts of the world, including the USA and Europe, are suffering from financial challenges, specifically in the context of prison libraries.

Censorship

Censorship is a very sensitive issue in prison libraries, and a primary concern of the American Library Association. Prison libraries cannot afford to stock books that may create problems for institutional security, such as those with content featuring martial arts, prison escapes, information on making bombs, violating rules, pornography and material that could lead to violence (Lehmann, 2011). Prison libraries do not acquire books on such topics. Sometimes, prison libraries have to face strict inspections of their material by prison security staff (Shirley, 2006). Lehmann (2000) also identified censorship as a sensitive issue in prison libraries. The librarians at correctional institutions have to maintain a balance when providing access to information. They must be vigilant because certain material can create security issues for the institution. The professional librarian must carefully examine any library material acquired.

According to Arford (2013), in the USA, censorship is exercised in several areas within the prison, such as reading material and its sender, and incoming mail. Secondly, prison libraries are subject to the censorship policies made by prison librarians. The third site of censorship is the educational and occupational programmes available in some prisons, where the teachers cannot freely choose course content and materials. Bowe (2011) highlights that prisoners are not allowed to read banned books. The governor or security staff have the authority to check library material on a case-by-case basis. The Prison Libraries Training Pack 6 provides guidelines on dealing with sensitive material. Sullivan (2008) states that, in the USA, library rights for prisoners are severely limited. The Federal Bureau of Prisons reserves the right to remove any religious literature that it finds offensive or a threat to security. Prison libraries are responsive to inmates' information needs. However, the censorship of reading materials hinders staff in effectively providing library services to inmates (Eze, 2015; Harrington, 2020).

Technology

In some states in the USA, inmates have access to a computer with applications and software to use for educational purposes. In Alaska, the Department of Corrections provides access to the LexisNexis digital law library for prisoners over the Internet (Bowden, 2002). Ellern and Mason (2013) reveal that the frequent use of computers could be seen in almost all prison libraries in the USA. In western North Carolina prison libraries, books are issued on an electronic library card system. Greenway (2007) states that technology needs to be present in all prison libraries. Shirley (2006) notes that most librarians reported that they had Internet access on computers, but its use was not for prison inmates. Payne and Sabath (2007) reveal that many prison librarians had adopted the latest automated technologies for their services over the previous 20 years.

Purifoy (2000) identifies that the prison library at the Oshkosh Correctional Institution had a computerized barcode system to issue and return library material. There was a television in the library's reading area. The library issued CDs and video players to the inmates so that they could listen to music or watch a movie in the library. Lehmann (2011) reports that prisoners could study for basic information technology qualifications. Most prison libraries had standalone desktop systems containing CD-ROMs and other software for prisoners' use. The primary purpose of these systems was to promote research and informal learning among inmates. In some European countries, prisoners and library staff have access to the Internet. Prisoners use the Internet to send and receive emails, visit websites and search public library catalogues. In Indonesia, prison libraries are providing online audiobooks to their users. The libraries' main goal is to provide more personal computers or iPads to inmates, and allow them to share their own stories with other prisoners in the digital environment (Rahmi, 2015). Prange (2001) points out that computers were required to meet the information needs of Canadian prisoners. In a few cases, computers were the only option to acquire the information needed. The use of computers in prison libraries invited security issues for the administration and policymakers. Although the importance of computers in providing education for citizens could not be denied, there had to be policy dealing with the various issues associated with computer use in Canadian prisons.

The Internet and related technologies such as automated catalogues, barcode scanners and online interlibrary loan services are used in prison libraries in western countries. However, correctional administrators are still less than responsive to providing Internet services in prison libraries because of several security concerns. Such technological services are most common in urban prison libraries in selected regions. The majority of prison libraries worldwide lack audiovisual and Internet facilities due to financial burdens and security issues.

Collaborations

Shirley (2006) states that partnership between prison libraries and public libraries could be seen in the USA. In 2003, Maryland Correctional Education Libraries started a programme where imprisoned adults could read material from the Enoch Pratt Public Library. Maryland Correctional Education Libraries also took the initiative to conduct group discussions among prison librarians and public librarians. Unlike the USA, the situation in other world regions is different. Most prison libraries aim to provide public library services in prisons. Prisoners not only require legal information, but need a variety of other information for their return to society.

Along with prison libraries, public libraries should establish outreach programmes for inmates within their detention centres (Omagbemi and Odunewu, 2007). The study conducted by Mfum (2012) reveals that cooperation among prison libraries and public libraries was absent in Ghana. According to Ellern and Mason (2013), in western North Carolina, most prison officials agreed to enhance their library services and form a partnership with public libraries.

In his study, Kannan (2008) discusses the significance of public libraries and their systems and services in both rural and urban areas of Bhutan. He highlights the importance of the public library as a local centre for information for users. Fundamentally, public library services are for everyone, regardless of their age, sex, race, nationality, language, religion or social status. This study concludes that particular services and collections must be provided to those who cannot access regular services and collections, such as people with disabilities, linguistic minorities, or people in prison or hospital. Furthermore, Asher (2006) points out that academic libraries can develop interlibrary loan programmes with prisons to allow inmates access to research material from their collections. Billington (2011) stresses the shared reading of literature such as poetry, fiction, plays and short stories in prison communities. Billington's article demonstrates the strong relationship between such intervention and the current recommendations regarding the mental health needs of prisoners.

Contraband

Another threat to prison libraries is vehicles for contraband. Bouchard and Winnicki (2008) note that a prison librarian provides users with information and works as an agent seeking and reporting on contraband in the library. The four means of smuggling in contraband that a library professional deals with are through library books, library furniture, mail and other library supplies. The illegal items sent via the pages of books are tobacco, stamps, love notes and betting slips.

Significance of the findings

This study highlights the current status of prison libraries around the world. It is an attempt to study the topic with a broad perspective and figure out the strengths and weaknesses of these special types of libraries. This will help readers to understand the difference between the library services of prison libraries and other types of libraries. It will also help researchers to consult and understand the literature published in this area of study.

Conclusions

The literature highlights prison libraries' purposes, practices and challenges across the globe. The findings show that staffing, budgeting and poor policies challenge prison libraries in working effectively in different parts of the world. The studies describe better inmate services in some states of the USA, the UK and some European countries than in other parts of the world. These libraries have some audiovisual material, limited access to the Internet, automated catalogues, cooperation with other libraries such as public libraries, and a regular budget for library materials. Moreover, a few libraries in the USA, the UK, Europe and Asia (including Japan and Malaysia) are broad in their scope and goals, and mainly work for prisoners' rehabilitation, vocational skills and lifelong learning.

Prison libraries can open the door to rehabilitation, education and socialization for prisoners. Consulting different information sources may teach prisoners to understand complex life issues and find guidance for their continuing education to prepare them for the outside world. Properly designed information literacy programmes may help them to become independent learners and, ultimately, these steps may be helpful in their rehabilitation. Previous research evidences that prison libraries worldwide are working with limitations for the welfare of their inmates. It was also found that the services of prison libraries are not the same – the situation varies in different countries. Based on a comparative lens, our literature review has established that a few prison libraries in the USA, the UK, Europe and Asia are far better than the prison libraries in other regions of the world. It has been suggested that inadequate prison libraries can replicate the model of ideal prison libraries (in countries that have proper legislation) located in different parts of the world to face their issues and challenges. These libraries will then be able to play an active role in society, fulfilling the needs of their potential users and also helping in the socialization and rehabilitation process of prison library users.

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A systematic review of crisis management in libraries with emphasis on crisis preparedness

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Abstract
Crisis preparedness is critical for crisis management in all organizations, including libraries. Libraries must make decisions about crisis situations, which requires planning and preparedness for crises. The purpose of this systematic review was to analyse and identify the main issues that assist libraries in decision-making in times of crisis. A total of 2900 studies from 1985 to 2020 were identified. Following the application of inclusion and exclusion criteria, 44 studies were included in the final review process. The findings of the study indicate that the subjects which were focused on most frequently with regard to crisis management were preparedness instruction, training programmes, preparation assessment and Important factors in crisis management. Moreover, the majority of the studies primarily focused on economic or financial rather than natural, social or health-related crises. Furthermore, between 2008 and 2017, there was a significant increase in the number of published articles mostly considered academic and research libraries. In addition, there has been a recent increase in articles dealing with crisis preparedness and management in these researches.

Keywords
Crisis management, disaster management, crisis preparedness, libraries, systematic review

Introduction

A crisis is a common phenomenon that can and will happen when least expected (Ahenkorah-Marfo and Borteye, 2010). Libraries and information centres have always faced numerous crises and disasters. Some are related to the social crises in which libraries operate; others are due to the nature and types of activities of libraries, and mainly result from changes in technology and the information needs and demands of users, which requires constant changes in the types of services provided by libraries. Eden and Matthews (1996: 6) define a crisis as ‘any incident which threatens human safety and/or damages, or threatens to damage, a library’s buildings, collections (or item(s) therein), equipment and systems’.

As Goedeken (2008) states, crises such as earthquakes, looting, war, and religious and political conflicts always threaten libraries. As Eden and Matthews (1996) confirm, such crises cause considerable disruption to services. This issue has caused researchers to address crisis management in libraries as an important subject of study (Yang et al., 2020). Crises are usually divided into two categories: natural (e.g. floods, storms, earthquakes, fires and landslides) and human-made (e.g. war, theft, terrorism and vandalism).

Once a crisis occurs, the necessary measures must be taken to reduce its effects. Having a crisis management plan in such a situation is essential. In crisis management, libraries address occurrences that endanger library facilities, collections and services, and people’s lives (Feather, 2017). As a result of the

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dangers associated with a crisis, the endangered library must ensure that crisis and disaster preparedness and management becomes an integral part of its fundamental functions (Ahenkorah-Marfo and Borteye, 2010). Disaster preparedness is defined as being able to have 'an effective response when a disaster occurs, and this is typically achieved through a combination of documented plans, emergency supplies, and staff training supported by internal and external contact arrangements' (Corrall and Brewerton, 1999, quoted in Ahenkorah-Marfo and Borteye, 2010:124)

Wilkinson and Lewis (2008) believe that the literature in this subject domain 'attests that when a library has a disaster preparedness plan in place, usually the library dean/director has appointed a disaster response assistance team prior to the disaster' (quoted in Wilkinson, 2012: 46). Furthermore, they assert that '[i]n more prepared libraries, that disaster team will have had safety training, including disaster preparedness training, and know their roles and responsibilities' (Wilinson, 2012: 45–46). It should be taken for granted that a disaster plan is linked or combined with disaster preparedness. Therefore, 'when there is not a disaster plan in place, a disaster team will be hastily chosen and leadership roles will emerge as the response and recovery unfolds' (Wilkinson, 2012: 46).

Moreover, in Ahenkorah-Marfo and Borteye's (2010) opinion, the dangers associated with disasters make it imperative for libraries to ensure that disaster preparedness and the ability to manage them becomes part and parcel of their core activities. Therefore, libraries must be prepared to reduce the impact of crises and deal effectively with such issues. According to the crisis and disaster literature, researchers generally regarded crisis preparedness in this field. Studies in this area are mainly focused on the aspects of crisis types, processes, preparedness and outcomes. The large number of these studies and the considerable number of case study reports show that although each library needs its own programme for crisis situations on the basis of its own resources, priorities and context analysis, formulating a crisis plan using certain elements of good practice can help libraries save time and money, improve their programmes, and reach the desired outcomes. Therefore, it is important to have a big picture of crisis preparedness issues in libraries mentioned or noticed in the literature to gain entire perspective on the building blocks of crisis preparedness in these organizations.

This is particularly important in specific crisis situations, such as unusual or unexpected epidemics or pandemics (e.g. the outbreaks of severe acute respiratory syndrome (SARS) and COVID-19). In addition to its general usefulness, a systematic review can help libraries respond quickly and appropriately in a time of crisis. However, there is an obvious gap in the study of crisis management in libraries. Furthermore, a primary evaluation of the literature showed that such systematic reviews have not been conducted by researchers and no systematic or in-depth studies of crisis management in libraries were found. The purpose of this study is therefore to find answers to the following questions:

1. What is the geographical and historical distribution of studies on crisis management in libraries?
2. Which types of crisis are most often considered in crisis management studies?
3. Which types of libraries are most often considered in crisis management studies?
4. What are the most important issues in library crisis management studies with an emphasis on crisis preparedness?

Literature review

According to Fink (1986), a crisis is an unstable situation in which there is impending change and the possibility of unpredictable outcomes. Crisis management seeks to reduce the impact of these unpredictable changes and is implemented through crisis detection, prevention and recovery, as well as design plans and procedures for crisis preparedness and implementation (Hazaa et al., 2021). A considerable number of studies on crisis in libraries have demonstrated the importance of crisis management and preparedness (Alajami, 2016; Green and Teper, 2006; Pazooki and Saboori, 2020). Formulating precise definitions is difficult and it is always possible to think of exceptions, but 'crisis or disaster' in libraries is defined as any incident which threatens human safety and/or damages or threatens to damage a library's buildings, collections or items, equipment or systems (Eden and Matthews, 1996).

According to the literature, different researchers systematically reviewed or generally studied crisis management. From a technological viewpoint, Kedia et al. (2020) carried out a systematic review to identify technologies that improve situational awareness and assist decision-making across US government and domestic and international agencies during disaster-response operations. Mehraeen et al. (2020) recognize the challenges that policymakers have typically experienced during pandemics, including COVID-19. Khaji et al. (2018) studied the ethical issues around technological disasters. Their findings show that more discussion is necessary on the ethics of technological disasters, especially in industrial countries and industries where there is the potential for large-scale crises.

Some researchers have reviewed the crisis process and its management. Hazaa et al. (2021) focus on the most important aspects and factors affecting a crisis. Oktari et al. (2020) aimed to explore knowledge management in all phases of crisis management to confirm the advantages of knowledge management in reducing the impacts of a disaster and enhancing disaster resilience. Vašíčková (2019) proposes a conceptual model for crisis management, respecting the proactive features and variables of the crisis management process. Alkandari et al. (2017) study the concept of knowledge management and its role in organizational crisis management through a comprehensive review of theories, literature and empirical studies. They review the prevailing theories of knowledge management and its relationship with organizational crisis management. Goldschmidt and Kumar (2016) analyse humanitarian operations and crisis management in order to provide direction for future research in this growing field. Brzozowski and Cucculelli (2016) identify the main trends of firms' reaction to economic crisis management and their ability to learn from previous events. Natarajarathinam et al. (2009) describe current practices and research trends in managing supply chains in a crisis. Fischer et al. (2016) provide a foundation based on the current literature and suggest future research directions to advance knowledge on communication and barriers in communication between and within crisis response organizations and the public during the mitigation, preparedness, response and recovery phases of crisis management. As mentioned, based on the literature analysis, none of the systematic review studies have addressed crisis management and crisis preparedness in libraries.

Over the past three decades, several studies have been conducted showing the importance of addressing crises or disasters in libraries. Reviewing these studies can be useful for researchers and administrators in libraries to comprehend crises and disasters in libraries and how to respond to them appropriately. This was the motivation for conducting a comprehensive investigation of crisis preparedness in libraries. The current review mainly focuses on the most important aspects of crisis in libraries to contribute knowledge to the existing body of literature.

Method

This is a systematic review that uses PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to review and analyse the studies conducted in the field of crisis management in libraries with an emphasis on the preparedness phase. Petticrew and Roberts (2006: 19) introduce a conceptualization of the systematic review as a study that 'strive[s] to comprehensively identify, appraise and synthesize all the relevant studies on a given topic'. The five phases of this study were: (1) the definition of the inclusion and exclusion criteria; (2) data sources and search strategies; (3) quality assessment of resources; (4) data coding; and (5) content analysis.

Definition of inclusion and exclusion criteria

The studies considered in this review had to meet the criteria described in Table 1.

The inclusion and exclusion criteria as well as the quality of the research findings related to or depended on the main purpose of this research. Therefore, crisis management and/or crisis preparedness research which was not related to libraries and did not have informative or credible results, or, with duplications, offered unreliable, inflated or unuseful results, was dismissed.

Data sources and search strategies

For this systematic review, the studies were identified from extensive searches of the ScienceDirect, ProQuest, Google Scholar and Emerald databases. Studies were included from 1985 to 2020 using the

Table 1. Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Should involve crisis/disaster management in libraries	Crisis/disaster management that is not used in or related to libraries
Related to crisis/disaster management	Not related to crisis/disaster management
Does not duplicate studies	Duplication of studies
English language	Language other than English (full text)
Not a conference paper (full text) or book review	Conference paper (abstract) or book review
Informative or credible results	Not informative or credible results

following keywords and search strategies: ('crisis management' OR 'disaster management' OR 'catastrophe management') AND ('library' OR 'libraries' OR 'information centre' OR 'information centres'). The searches retrieved 2900 records. Of these, 105 were found to be duplicates, resulting in 137 articles for analysis. Based on the inclusion and exclusion criteria, 44 articles remained for the final analysis process. The process of this review was to identify studies via databases and registers (PRISMA; Page et al., 2021). The PRISMA flowchart is shown in Figure 1.

Quality assessment of resources

In a systematic review, quality assessment is one of the main factors that needs to be examined along with the inclusion and exclusion criteria (Al-Emran et al., 2018). In order to ensure the quality of the articles reviewed in this study, a checklist was prepared to identify the most relevant articles on crisis management in libraries. Table 2 lists the quality criteria questions. It is noteworthy that the 'peer-reviewed article' criterion was ignored because of the possibility of missing useful and informative literature such as reports or book chapters containing evidence or facts on crisis management and/or preparedness in libraries.

As mentioned above, the inclusion and exclusion criteria, as well as the quality of the research, were important and vital. Therefore, research containing noteworthy or meaningful results especially in relation to crisis preparedness in libraries was considered.

Data coding and content analysis

Based on the research methodology, the studies were coded according to (1) crisis management and process; (2) library type; (3) crisis/disaster type; (4) focus on the preparation phase; and (5) country, region or continent.

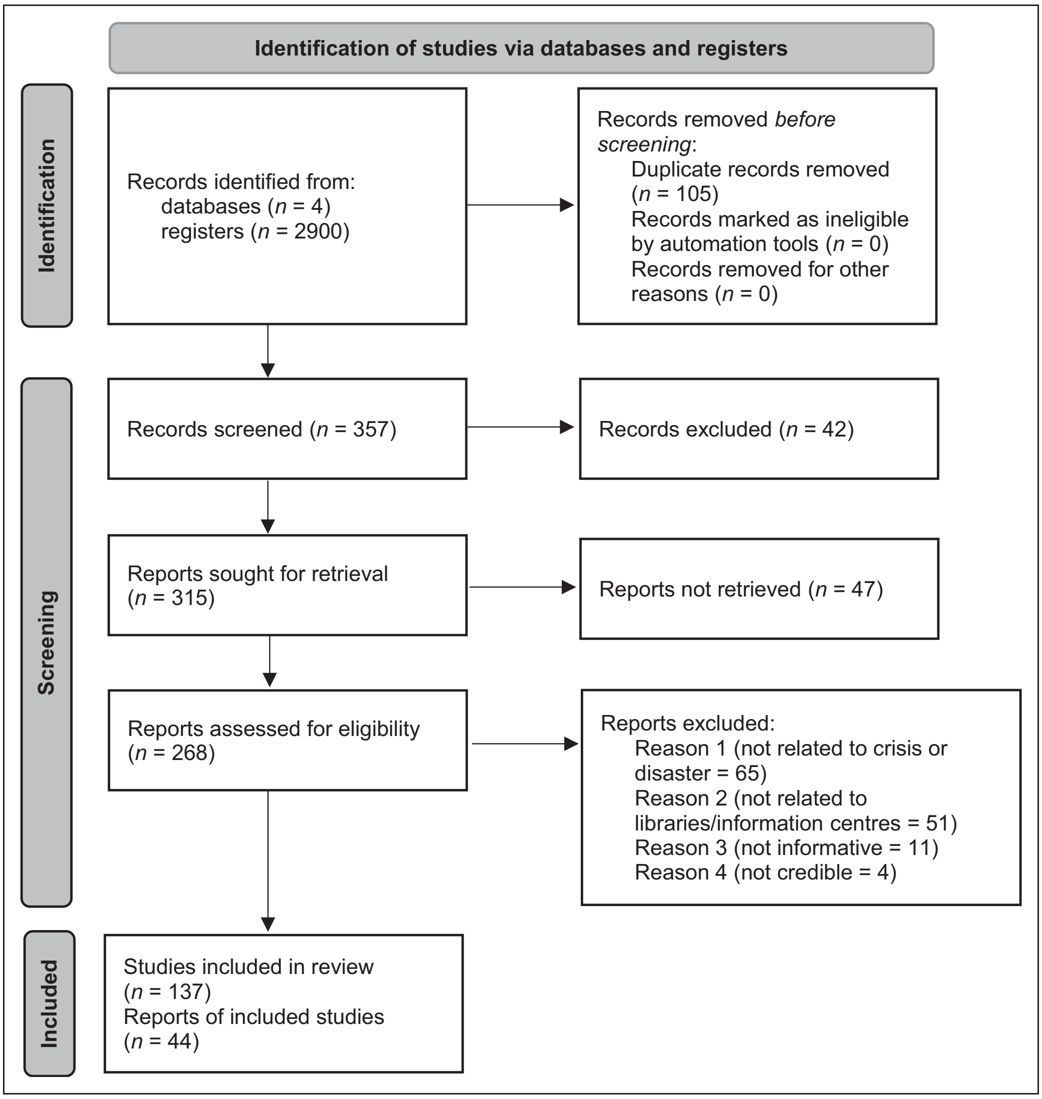

Figure 1. PRISMA flow diagram for identification of research.

Table 2. Quality criteria checklist.

Question
1. Is the article directly related to crisis management in libraries?
2. Are the research aims clearly specified?
3. Do the results add to the literature?
4. Does the study add to your knowledge or understanding?

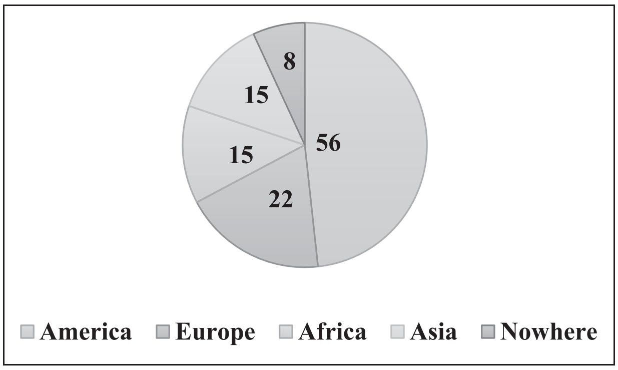

Figure 2. Distribution of studies by continent.

The studies were analysed using MAXQDA 2020 qualitative data analysis software. The credibility of the content analysis was assured by peer debriefing and researcher/investigator triangulation methods.

Results

Based on the research questions, the findings of an analysis of 137 published studies on crisis management in libraries from 1985 to 2020 are reported here.

What is the geographical and historical distribution of studies on crisis management in libraries?

Geographical distribution. Figure 2 shows the geographical distribution of the studies analysed by continent. Based on Figure 2, 56 studies were conducted in America. 22 in Europe, and 15 in Africa and Asia, respectively. Research that did not specifically mention a continent was coded as 'nowhere'.

Figure 2 shows that North American libraries were studied more often in the researches and European, African and Asian libraries being were less prevalent.

Historical distribution. Figure 3 shows the distribution of the examined studies by year of publication. The number of publications increased from one study in 1985–1995 to an average of seven studies over the last four years. Furthermore, between 2008 and 2017, there was a significant increase in the number of published articles. The number of studies in 2020 is four because the data collection was undertaken in October 2020 and the studies related to that year had not all been published.

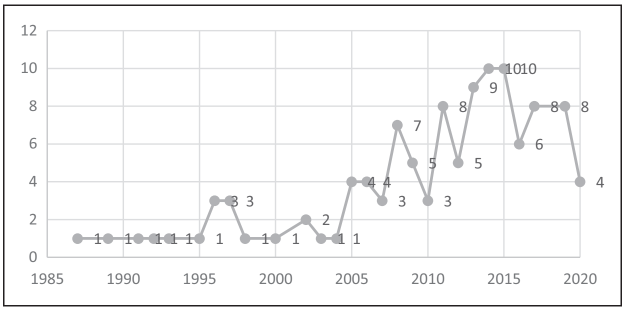

Figure 3. Distribution of studies by year of publication.

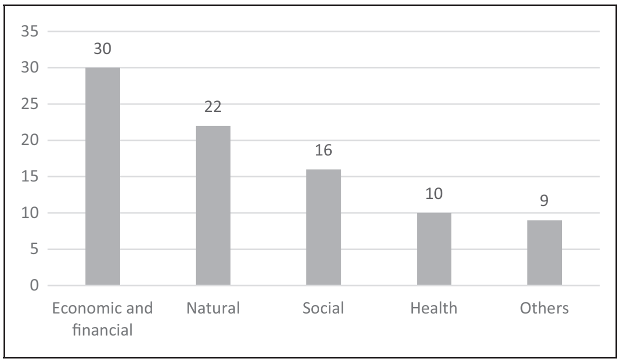

Figure 4. Distribution of studies by type of crisis.

Which types of crisis are most often considered in crisis management studies?

Figure 4 illustrates that the studies most frequently focused on economic and financial crises, followed by natural, social and health crises. The findings show that the main focus of researchers was on the fiscal or financial aspects of a crisis. Further studies are needed on the other issues related to the types of crisis in libraries and their impacts on library services and activities. The 'Others' category includes crises or disasters involving fire, collapse, power, war, security and microbiological control. It is notable that health issues, such as the COVID-19 pandemic, were studied less than other crises or disasters.

Which types of libraries are most often considered in crisis management studies?

As Figure 5 shows, crisis management studies were most frequently conducted on university/academic and research libraries ($n = 85$), followed by public libraries ($n = 30$) and national libraries ($n = 11$).

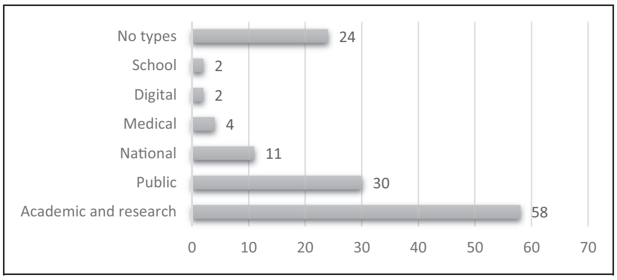

Figure 5. Distribution of studies by library type.

Research that did not specifically mention any of the library types was coded as 'No types'. The main reason for the higher number of crisis management studies on academic libraries seems to be the important social and institutional role of these organizations. As Deol and Brar (2021) comment, libraries cannot stop their services in times of crisis; rather, these services need to be expanded and delivered more quickly. During a crisis, academic libraries should provide relevant information resources to researchers through various means and work together with researchers who are conducting research on the crisis.

What are the most important issues in library crisis management studies with an emphasis on crisis preparedness?

The content analysis showed that a total of 30 research articles fall in the category of crisis preparedness (see Table 3). The analysis indicated that there are four main categories of research: preparedness instruction in the crisis management process; crisis and disaster training programmes; crisis preparedness and crisis management assessment; and important factors in crisis preparedness.

Preparedness instruction. Crisis management researchers have largely focused on pre-disaster planning and organized response to crisis and disasters. As Malewar and Kanholkar (2018:15) state: 'If we are prepared for pre-disaster planning, the loss may be reduced'. Several studies have been carried out in connection with preparedness instruction in the crisis management process. The first such research, by Vaughan et al. (1989), goes back four decades. These researchers prepared a manual to minimize the potential for disaster at the State University of New York. They provide an emergency instruction sheet and recommend disaster managers to prepare a disaster contact list. The manual covers salvage priorities, prevention, protection, response and recovery timetables, response procedures, disaster supplies, suppliers and equipment, insurance, the recovery process, rehabilitation and the ongoing responsibilities of the disaster recovery team.

Another early study was conducted by Eden and Matthews in 1996 in British public libraries. Their findings show that four essential stages were widely recognized in the crisis process: prevention, preparedness, reaction and recovery. They also emphasize the importance of risk assessments and frequent building and equipment inspections, as well as the identification and use of reputable expert advice, staff training programmes, and contingency planning for interim services, accommodation and storage.

Muir and Shenton (2002) emphasize that a disaster plan is a central part of disaster management. They carried out six case studies of UK university libraries and their use of disaster plans. Based on their findings, the key measures to overcoming disaster situations are leadership, experienced staff and on-site conservation expertise. Fullerton (2004) raises the issue of crisis at the National Library of Australia. It was found that the library's experiences and techniques to deal with a crisis could harm its collections, staff, assets and business. The article lists the key tools and processes that have contributed to the library's development of an effective level of disaster preparedness. Beales' (2003) research concentrates on pre-disaster planning for hospital libraries. The findings show that hospital libraries should be prepared to deal with emergencies such as fires, floods and loss of the Internet. In the development of library disaster-control resources, it is necessary to take a step-by-step approach and adopt a multi-step method when writing a library emergency plan.

Disaster prevention at the library of the University of the Philippines was studied by Lagrama (2009). The probability and effects of a disaster in libraries are evaluated in this study. The findings reveal that fire and water are the biggest threats to library collections. Lagrama developed a risk template that librarians can use as a supporting document for a disaster plan. Yeh et al. (2010) examine disaster-planning resources, and brainstorm possible approaches and present a template for disaster planning in a medical sciences library based on the case of the University of South Carolina's School of Medicine Library.

Crisis management approaches for academic libraries and suggestions for Greek academic libraries are offered by Kostagiolas et al. (2011). Their findings show that crisis management appears to be handled inefficiently, if not altogether ignored, within academic libraries in Greece. For a multitude of reasons, including a shortage of staff, lack of equipment maintenance, inadequate rooms and insufficient financing, the economic crisis is further eroding

Table 3. Literature on crisis preparedness and practices in libraries.

Author(s)	Year	Aim/objective	Findings	Key subject	Type of library
Vaughan et al.	1989	Prepare a manual to minimize the potential for disaster in libraries	An emergency instruction sheet is proposed and recommended for disaster managers	Preparedness instruction	University/academic
Eden and Matthews	1996	Investigate disaster management in British libraries	The four stages that are widely recognized as essential to the crisis process are prevention, preparedness, reaction and recovery	Preparedness instruction	Public
Muir and Shenton	2002	Investigate the current level of planning for crisis in UK libraries	During a disaster, the key requirements are leadership, experienced staff and on-site conservation expertise	Preparedness instruction	Public
Fullerton	2004	Highlight the issue of crisis at the National Library of Australia	Key tools and processes that have contributed to the library's development of an effective level of disaster preparedness are presented	Preparedness instruction	National
Beales	2003	Discuss the necessity of a disaster plan for libraries	In the development of library disaster-control resources, a step-by-step approach and multi-step method in writing a library emergency plan are necessary	Preparedness instruction	Hospital
Lagrama	2009	Evaluate the probability and effects of a disaster in libraries	Natural crises (fire and water) are the biggest threats to library collections– they present a risk that librarians can use as supporting documentation for a disaster plan	Preparedness instruction	University/academic
Yeh et al.	2010	Examine disaster-planning resources and brainstorm possible approaches in crisis preparedness	The need for a disaster plan is determined based on the case of the University of South Carolina	Preparedness instruction	University/academic
Kostagiolas et al.	2011	Determine disaster management approaches for academic libraries	In Greece, disaster management in academic libraries seems to be dealt with inefficiently; the economic crisis is further degrading the level of disaster preparedness due to a number of side effects, including the lack of personnel and maintenance of equipment, inadequate infrastructure and insufficient funding	Preparedness instruction	University/academic
Fabunmi	2011	Recognize the types and causes of disaster in university libraries	University libraries should renew their commitment to safeguarding their precious holdings through the implementation of a functional catastrophe plan; guidelines are presented for disaster management	Preparedness instruction	University/academic

(continued)

Table 3. (continued)

Author(s)	Year	Aim/objective	Findings	Key subject	Type of library
Frank	2011	Consider the role disaster plans play in preserving select libraries' collections	Large-scale disasters, like a hurricane or an earthquake, render disaster plans ineffective, though action taken by library staff before and immediately afterwards can make a difference; a list for library disaster planning is recommended	Preparedness instruction	–
Zaveri	2016	Address the issue of information technology disasters and investigate the perceptions of librarians on the probability of digital disasters	Due to a lack of knowledge about handling digital data, and an inadequate digital infrastructure in organizations, the chances of the loss of digital data are high	Preparedness instruction	Public
Pierard et al.	2017	Present an idea (Building Back Better) that is widely discussed in the disaster literature	Introduces Building Back Better framework elements as a critical concept for library planning both prior to and following a disaster	Preparedness instruction	–
Teper	2006	Present a framework for personnel crisis training	Outlines a training programme in order to prepare personnel for the challenges of dealing with a large-scale library disaster	Training programmes	University/academic
Green and Teper	2006	Help fill the gap (disaster planning in small public libraries) using a combination of case studies and existing disaster-planning documentation	Education and training, an awareness of resources and creating a disaster plan are the most important factors that can be changed to enhance the safety of staff, buildings and collections in a crisis	Training programmes	Public
Braunstein et al.	2012	Highlight the role of academic libraries in times of crisis	Academic librarians must learn to take the initiative and ensure that their libraries are involved in crisis response efforts early, preferably as part of their disaster-planning process	Training programmes	University/academic
Mitra	2015	Discuss library professionals' role in managing emergencies and crises	Initiatives have been taken by UNESCO to educate and spread awareness among people regarding reducing the impact and effects of potential disasters or emergencies	Training programmes	–
Ilo et al.	2019	Identify the challenges affecting disaster training in libraries	Inadequate facilities and a lack of financing are the biggest obstacles to disaster training	Training programmes	Public
Fergusen	2003	Assess the preparedness of libraries to deal with an epidemic crisis	Briefly describes the plans of libraries to deal with the SARS epidemic	Crisis preparedness and crisis management assessment	Public

(continued)

Table 3. (continued)

Author(s)	Year	Aim/objective	Findings	Key subject	Type of library
Aziagba and Edet	2008	Investigate the disaster-control preparation of university libraries	Academic libraries are not in a position to face a catastrophe; there are no serious disaster preparedness measures in place, and there is an inadequate level of basic maintenance and staff training	Crisis preparedness and crisis management assessment	University/academic
Ahenkorah-Marfo and Borteye	2010	Examine the preparations of libraries with regard to preventing, fighting and managing disasters	Libraries are not ready to prevent, fight or deal with disasters as a consequence of insufficient preparation of staff members	Crisis preparedness and crisis management assessment	University/academic
Waweru	2014	An assessment of disaster management practices in school libraries	School libraries encounter a number of disasters, including fires, floods, war and student riots, negligence and poorly maintained buildings	Crisis preparedness and crisis management assessment	School
Sison	2014	Investigate the disaster-readiness of a national library	Most library personnel are well informed about the significance of an emergency plan and willing to perform any task assigned to them	Crisis preparedness and crisis management assessment	National
Ambika and Begum	2018	Examine the issues of conditions and causes of deterioration disaster preparedness	Causes of deterioration disaster preparedness in KSLU Law Library demonstrated	Crisis preparedness and crisis management assessment	Special
Yang et al.	2020	Demonstrate the use of an Internet of Things in library crisis management	Proposes an Internet of Things-based model for allocating emergency materials in normal times in libraries; the results show that the proposed model is applicable for the allocation of emergency materials	Crisis preparedness and crisis management assessment	–
Dougherty and Dougherty	1993	Discover the top-three concerns for crisis preparedness in academic libraries	Technology, leadership and library users are the main concerns for crisis preparedness in academic libraries	Important factors in crisis preparedness	University/academic
Parker	2012	Provide an example of a library where a pre-disaster and post-disaster organizational environment is supportive of experimentation and influences employees' capacity and motivation to create a new tool to solve a temporary need in crisis management	Shows how the disruptive forces of a disaster can influence and promote organizational learning and foster innovation, and demonstrates how library employees' feelings of trust before and following a workplace disaster shifted their mental models of change	Important factors in crisis preparedness	University/academic

(continued)

Table 3. (continued)

Author(s)	Year	Aim/objective	Findings	Key subject	Type of library
Rattan	2013	Discuss the role of the library and librarians in disaster management	The most important roles of the library and librarians are educating people to safeguard them against emergencies and changing the library programme	Important factors in crisis preparedness	–
Lingel	2013	Address the issue of crisis preparedness in public libraries	More teleological analysis of the social purposes of libraries is essential for crisis preparedness	Important factors in crisis preparedness	Public
Joyce	2017	Highlight issues in disaster preparedness	The most important issues in crisis preparedness are insufficient funds, insufficient technology, and insufficient library staff awareness; the four main elements for crisis management are disaster prevention, preparation, response and recovery	Important factors in crisis preparedness	University/academic
Linder	2019	Discuss context-related characteristics of disaster response and recovery	Library officials' immediate environment and how it is perceived by managers, combined with how managers interpret their role as public servants and the image of their organizations, are the main factors in disaster preparedness	Important factors in crisis preparedness	–

disaster-readiness. The types and causes of disaster in academic libraries, and guidelines for crisis management and planning, are examined by Fabunmi (2011). In this research, it is suggested that university libraries should renew their commitment to safeguarding their holdings through the implementation of a functional disaster plan. The impact of a crisis on library services might also be minimized by having a formal written plan, which will aid in a prompt response to an emergency.

Damage caused by hurricanes is the focus of Frank's (2011) research. This study examines the impact of Hurricane Katrina on south-eastern Louisiana, the New Orleans metropolitan area and libraries in the southern Mississippi region. It is among the few pieces of research that have considered the role of disaster plans in preserving library collections. The findings introduce library disaster plans to mitigate small, localized disasters– not those on the scale of Hurricane Katrina. However, large-scale disasters, such as a hurricane or an earthquake, render such plans ineffective, though action taken by library staff before and immediately afterwards can make a difference. This research recommends a list for future library disaster planning.

The crisis preparedness and crisis management literature has not been limited to financial, natural, health or social crises. For instance, Zaveri (2016) addresses the issue of information technology disasters and investigates the perceptions of librarians on the probability of digital disasters in Indian libraries. The results indicate that, due to a lack of knowledge about handling digital data and an inadequate digital infrastructure in organizations, the chances of a loss of digital data are high. Zaveri's article identifies trends in the protection of digital data and presents basic guidelines for digital data preservation.

Pierard et al. (2017) introduce the Building Back Better framework as a critical concept for library planning both before and after a disaster. This framework focuses on library collections, services, spaces and people, and comprises the four categories of risk reduction, recovery and regeneration, implementation, and monitoring and evaluation. The principles and key questions are defined for each category, and presented as a response and recovery mechanism for libraries.

Training programmes. Training is an inevitable part of crisis management, and some researchers have conducted studies that address this important necessity, especially in libraries. Teper (2006) outlines a training programme developed at the University of Illinois in order to prepare its personnel for the challenges of dealing with a large-scale library disaster. He states that disaster training may not be possible at all institutions but familiarizing library administrators and disaster-response team members with their disaster plan and the potential results of an event remains crucial to the success of an emergency response.

A focus on public libraries has been an important part of some research, which has drawn on information gathered through surveys and interviews, and found that perceptions and projected behaviour vary across libraries. For example, Green and Teper (2006) focus on small public libraries and emphasize education and training, awareness of resources and creating a disaster plan as the most important factors affecting the safety of staff, buildings and collections in a crisis.

Braunstein et al. (2012) emphasize that academic libraries have a great deal to offer their institutions and communities, and academic librarians' experience can help mitigate disaster scenarios. These researchers highlight crisis experiences at Louisiana State University, Tulane University's Howard-Tilton Memorial Library and the University of Hawai'i at Manoa's Hamilton Library. They conclude that academic librarians must learn to take the initiative and get academic libraries involved in response efforts to crisis situations early, preferably as part of the disaster-planning process in order to achieve their full potential. On the other hand, Mitra (2015) discusses library professionals' role in managing emergencies for the local community in reference to the historical background of disasters, and suggests that initiatives have been taken by UNESCO to educate and spread awareness among people regarding reducing the impact and effects of potential disasters or emergencies.

Ilo et al. (2019), in their study, obtained strong empirical evidence for the underlying factors that affect disaster training in federal and state university libraries in Nigeria, and identify the challenges facing disaster training in these libraries with a view to finding ways to cope with disasters. The findings reveal that the university libraries in the investigated region are more prepared to deal with fires than any other types of disaster, which is why fire drills and exercises are the most common disaster training for library employees. Inadequate facilities and equipment for disaster preparedness, as well as a lack of financial support, were discovered to be the biggest obstacles to disaster training. The most effective technique for resolving the listed difficulties was found to be the provision of suitable disaster facilities and equipment, along with the formation of a disaster prevention and response team.

Crisis preparedness and crisis management assessment. A review of the research in this area shows that history of crisis preparedness and crisis management assessment comes back less than two decades. These studies are comprehensive, including other types of processes and training programmes for the evaluation of crisis preparedness and crisis management in libraries. For instance, Fergusen (2003) addresses the preparedness of libraries to deal with an epidemic crisis in Hong Kong and briefly describes the plans of libraries to deal with the SARS epidemic. He concludes by asking basic questions about how to deal with the crisis in academic and university libraries.

In another study, Aziagba and Edet (2008) investigated disaster-control preparation in West African university libraries. They reveal that these academic libraries were not in a position to be able to cope with a disaster; there were no serious disaster preparedness measures in place; there was inadequate basic maintenance; and staff training was insufficient. They discuss that a national strategy is required to enable individuals at all levels to approach disaster preparedness in a positive manner.

Ahenkorah-Marfo and Borteye's (2010) study examines the preparation of the Kwame Nkrumah Science and Technology University Library in Ghana for disaster prevention and management. The study shows that the library was not ready to avoid, fight or handle disasters. This was as a consequence of the insufficient preparation of staff members. The recommendations include the provision of a clearly identified emergency exit, training for staff members, and notes showing how staff members should respond and where they should go. Moreover, research conducted by Issa et al. (2012) in Nigeria shows that there were no crisis management professionals at hand at the public library of Ilorin in Kwara state because staff members had little or no regard for the potential occurrence of disasters.

Waweru (2014) carried out an assessment of crisis management practices in school libraries, using the Aga Khan Academy Library as a case study. The study found that school libraries encounter a number of disasters, including fires, floods, wars and/or student riots, negligence and poorly maintained buildings. The study concludes that school libraries should identify the disasters that need to be properly managed, and proposes a number of recommendations, including the development of a crisis management policy, which must be endorsed by the school's top management so that it is binding for all stakeholders.

Recent research has shown a significant change in the way libraries deal with crises. One of these studies, by Yang et al. (2020), considers modern crisis management in the digital era. The researchers propose an Internet of Things-based model for allocating emergency resources in normal times in libraries. The test results show that their model is applicable for the allocation of emergency resources. With the adoption of this model, resources can be delivered to disaster zones to reduce casualties and the loss of property.

Important factors in crisis preparedness. Issues of crisis preparedness have been extensively studied in the literature and embedded in everyday library practices all over the world (Kostagiolas et al., 2011). Dougherty and Dougherty (1993), although not directly addressing a crisis in academic libraries, polled their board of editors and readers to discover their top-three concerns with regard to crisis preparedness in academic libraries. Their analysis of the views of their research community shows that technology, leadership and library users were the main concerns in crisis preparedness and crisis management.

The relationship between pre-disaster and post-disaster planning is studied by Parker (2012). The study provides an example of a library where a pre- and post-disaster organizational environment was supportive of experimentation, and this influenced the employees' capacity and motivation to create a new tool that was designed to solve a temporary need in crisis management in university libraries.

The role of librarians in crisis management is discussed in detail by Rattan (2013). The main role of librarians was to change in programme and it needs to be modified keeping in view the importance of crisis management. The most important role of libraries from the researcher's point of view is to educate people to safeguard themselves against emergencies.

Lingel (2013), using a community ethnography approach, addresses the issue of crisis preparedness in public libraries in the USA. He claims that crisis preparedness requires not just reflection on preserving materials and safeguarding infrastructure, but also a more teleological analysis of the purpose of libraries as a social community. A study at Makerere University Library by Joyce (2017) highlights that the issues concerning disaster preparedness included insufficient funds, technology and library staff awareness. In addition, the study proposes four main elements for crisis management: disaster prevention, preparation, response and recovery.

Context-related characteristics in disaster response and recovery are explored by Linder (2019). In this research, the factors associated with what library officials perceive to be the extent of the role of their organizations are presented. The results show that several factors might be associated with an expressed willingness to engage in various kinds of post-disaster behaviour. It concludes that the immediate environment of library officials and how it is perceived by library managers, combined with how managers interpret their role as public servants and the image of their organizations, are the main factors in disaster preparedness.

Conclusion

Disasters or crises are nothing new for communities, societies or countries, but it is important to know how to deal with them in an effective and proactive manner. Crises and disasters vary in different domains and regions, and are encountered at the local, regional, national, international and worldwide levels. Furthermore, the types of disaster range from financial disasters to natural, health and social disasters. It is evident that research concerning disasters or crises should be, actively or passively, helpful and useful. Findings showed that the main concentration of studies about crisis or disaster in libraries is based on crisis management or crisis preparedness no matter of the type of libraries. Therefore, investigating the most frequent or important researches in this field display libraries facing miscellaneous types of crisis or disaster eventually reflects the main issues facing communities or societies. Furthermore, study the processes of and teaching crisis preparedness or crisis management was part of preparedness assessment in the literature. As stated by Linder (2019), with the shift towards a more collaborative approach to emergency management, scholars and government officials have stressed the importance of identifying existing and potential actors, and developing an emergency network to prepare for natural disasters and crises. Libraries, as cultural, scientific and not-for-profit organizations, could work closely with local organizations to formulate disaster-response plans that take greater advantage of the resources and capabilities of civil society and voluntary organizations. It could be excellent incentives for libraries to take for granted roles as a self-governing organization to confront with disasters or crises or to help the community or society to better deal with new situations. Therefore libraries, at the least, could become a local hub to better manage crises along with higher administrative parties. Moreover, these organizations should become administrative arms, acting as surrogates to handle and control disasters, or avoid more consequences for communities and societies.

It is evident that some services and issues related to the inherent responsibilities of public, academic, medical and national libraries in times of disaster are crucial, inevitable and important. Services related to health information, information-seeking and education, and other services related to library facilities or the library as a place with shelter, power and ventilation, are important and vital. The role of libraries and their activities before, during and after a crisis seems to be different. Before a crisis, all types of libraries should have crisis preparedness or crisis management plans. It means that they will be well organized, ready to do, and cautious organizations for prompt and planned action. As Frank (2011) notes, large-scale disasters like hurricanes or earthquakes render such plans ineffective, though action taken by library staff before and immediately after such disasters can make a difference. For instance, he believes that ‘disaster plans focus on events happening singly, not a succession of events that are likely to happen during a hurricane or earthquake’ (Frank, 2011: 4). This could be generalized to other crises or disasters such as the COVID-19 pandemic.

Research limitations

The inclusion of research related to or other than in the library and information science field in other databases, such as those of the Institute of Electrical and Electronics Engineers, Springer, Wiley, Taylor & Francis or JSTOR, for example, could have yielded more results associated with crisis preparedness and crisis management. However, this would have been time-consuming and these databases were not available to the researchers. In addition, a future study could include research published in languages other than English.

Further research

Research on the COVID-19 pandemic seems to have become a trend over the last three years (2019–2021). A systematic review of COVID-19 pandemic research on libraries and the field of information science is recommended.

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A review of international education literature: Interdisciplinary and discovery challenges

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Abstract
The discovery of relevant research in the field of international education can be difficult due to the nature of the field and how scholarly work is indexed. This article presents a review of published international education literature to identify key topics and publication patterns, along with potential gaps and inequities in current scholarly discourse. Using the keywords "international education" and "global education," the analyses focus on records retrieved from Web of Science. Of the 1492 peer-reviewed journal articles reviewed (published from 1991 to 2017), the analyses revealed only 705 articles relevant to the field of international education. Additional analyses of bibliometric data show a significant increase in international education publication over the past two decades; evolving trends regarding topical foci and methods; and publication disparities regarding national contexts and languages outside the Global North/anglophone-dominated discourse. The article concludes with recommendations to improve discoverability, better connect various areas of international education research, and expand scholarly discourse to include more diverse representation.

Keywords
International education, internationalization of research, global education, bibliometrics, discoverability, discovery, literature review

Introduction

International education is an extraordinary field, bringing together researchers, scholars, and practitioners from a variety of disciplines. As Mestenhauser noted:

> my field is untraditional; that it is not a disciplinary "specialty"; that it does not reside in its own "box" but that it is found in many boxes; that it is a composite of borrowings from virtually every academic discipline and every culture; and that international education is therefore multidimensional, multidisciplinary, and cross-cultural. (Mestenhauser, 2012: vii)

This celebrated variety can also make it difficult for individuals who are interested in international education to find relevant research, as terminology is often not consistently applied across disciplines and national boundaries (Deardorff and Jones, 2012; De Wit, 2002; Knight, 2012). Even the broadest terms may cause difficulty. For example, "mobility" may refer to outbound (i.e. study abroad) or inbound (i.e. international students) mobility, and "internationalization" may refer to efforts to increase student and staff mobility (i.e. internationalization away), increase diversity and inclusion experiences within a campus environment (i.e. internationalization at home), or include diverse perspectives and encourage international mindsets in teaching (i.e. internationalization of the curriculum). In addition, within the field of international education, there are silos related to professional subfields, such

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as study abroad or international student/scholar services, which can also contribute to difficulty in identifying relevant literature. For example, although both of these subfields deal with mobility (of students, staff, and faculty members), much of the related literature does not commonly intersect in academic or professional scholarship. This can be problematic for researchers and requires a reconsideration of what constitutes knowledge in the field of international education.

In order to better understand the state of knowledge in the field of international education, this article examines existing academic scholarship and is guided by the following research questions:

1. What are the primary and emergent topical focus areas in international education research?
2. Where is the majority of international education research being published?
3. How have these trends changed over time?

The significance of this review is threefold: (1) reflecting on existing knowledge and understanding the state of the field is important; (2) identifying and integrating the multiple dimensions of international education provides for a more holistic discussion of existing and emerging scholarship, as well as gaps in the field; and (3) by addressing the field holistically, this review offers insights into how both scholars and practitioners can find relevant research, as well as suggestions for how future research may be better identified and classified within the field. By mapping the features of the existing literature, we can hope to address a more inclusive landscape of understandings and provide insights into current progress in the field.

Literature review

The breadth of the field of international education results in a wide variety of topics that have warranted systematic reviews, and each scholarly contribution has recommendations for additional research to expand the field further.

Dolby and Rahman (2008) aim to provide an "introduction to the field" by focusing their review of literature produced between 1990 and 2008 on six research approaches in international education: comparative and international education, the internationalization of higher education, international schools, international research on teaching and teacher education, the internationalization of K–12 (kindergarten through Grade 12) education, and globalization and education. Within the article, they discuss the history of each approach before examining major theories and research trajectories, expounding on the intended audience and orientation, and outlining the associated strengths and weaknesses. In setting the context for what they consider to be international education, Dolby and Rahman (2008) note their exclusion of several areas of research: language education, technology, intercultural education, multicultural education, and "research from fields such as cross-cultural psychology" (679). They also consider two paths for the development of international education: "(a) the ascendance of the globalization and education approach as an increasingly important theoretical framework and (b) with that, the increased convergence and perhaps consolidation of some of the approaches" (710).

Bedenlier et al. (2018) provide a content analysis of titles and abstracts for articles published in the *Journal of Studies in International Education*, tracing the development of the field of international education by dividing their data into five-year increments. The major concepts that permeate the time periods include mobility, teaching, studies, faculty, students, and education. From the 406 articles published from 1997 to 2016, two strands of research on internationalization are identified, focusing on (1) the applied aspects of managing institutional internationalization and (2) the experiences and perspectives of the actors of internationalization. The findings also note global representation issues in authorship as "research in the field has so far been largely Anglo-Saxon and Western European driven" (Bedenlier et al., 2018: 128). In the article's conclusion, a suggestion is also made for future research to extend the analysis to include other journals.

Although there have been other studies that utilize systematic approaches to examine distinct facets of international education literature—such as international higher education (Kuzhabekova et al., 2015), transnational higher education (Kosmützky and Putty, 2016), international comparative higher education (Kosmützky and Krücken, 2014), and international student mobility (Gümüş et al., 2020)—these are limited in not considering a wider scope of relevant international education literature. Even among the two more extensive reviews summarized above, there are noted limitations. Bedenlier et al. (2018) focus only on articles and themes published in one journal, whereas Dolby and Rahman (2008), although more comprehensive, exclude literature from multicultural education, intercultural education, and language education, while incorporating comparative education literature and history. It can be reasonably assumed that much has changed in the field over the past decade, and that this topic is worth revisiting more broadly.

What is "international education"?

One of the issues that emerges from examining previous reviews (and continues to confound many in international education) regards terminology, and a lack of consistent agreement between researchers and practitioners as to what terms should be used for which concepts. As noted by Marshall:

> Teachers and global educationalists are currently drowning in a sea of seemingly similar terms. Global citizenship education, global learning, international education, education with a global or international dimension, development education, world studies, education for an international understanding—and the list goes on. (Marshall, 2015: 108)

De Wit (1997, 2002) similarly recognizes the confusion associated with the wide diversity of terms, and recommends distinguishing international education as a special research area within educational science, acknowledging "the widely held acceptance of the use of the term 'international education' to describe activities, projects, and programmes that deal with the internationalisation of education" (De Wit, 1997: 7). Recognizing the need for clarity, for the purposes of this study, international education is defined as including any research focused on programs and activities that are intended to internationalize education, in line with De Wit's recommendation. This comprehensive definition of international education includes institutional efforts to internationalize, and the mobility of individuals and ideas across national borders for educational purposes, as well as distance or online learning across national borders (i.e. transnational education), and ancillary topics related to learning about and interacting with foreign languages and cultures. In some regions of the world, the term "global education" is preferred, as it includes international education and supersedes national borders and barriers; "its strength is that it does not exclude or discount the important contributions made by *all* of the traditions contained within it" (Marshall, 2015: 119). Therefore, even when used as umbrella terms, there are distinctions between international education and global education. In considering the parameters for this research, the focus excludes "multicultural education," which refers more to "the promotion of intercultural understanding within a national context" (Marshall, 2015: 111); "comparative education," which refers to comparing systems of education without involving interactions between individuals in or from the disparate systems (Bray, 2015); and "development studies/education," which can be relevant to comparative education and focuses on foreign assistance through national and international policies to develop educational systems in a particular country or region, often based on aid agendas and focused on Global North perspectives attempting to effect positive changes in the Global South (Sumner, 2006).

Acknowledging the noted limitations of previous research syntheses and the parameters set forth above, this research seeks to explore international education research more holistically while also acknowledging the nuance between topics. Research was purposely not excluded based on study populations (K–12, community/technical colleges, higher education), national contexts, research methods (quantitative, qualitative, mixed methods, reviews), and academic disciplines (including language education with English as a foreign language and other foreign language studies). This study also utilizes a non-US-specific definition of what international education research includes by also including "global education" terminology. In developing the codebook for this research, we wanted to recognize the links between international education as both a scholarly field and a profession of practice (De Wit, 1997; Streitwieser and Ogden, 2016). As such, the initial overarching topics were defined using the five distinct professional knowledge communities of NAFSA: Association of International Educators (2020): education abroad (to include study, work, internship, volunteering, and research abroad), international education leadership (to include internationalization efforts), international enrollment management (to include recruitment), international students and scholar services (to include programming and services), and teaching and learning (to include curriculum development and teacher/learner experiences). These five topical areas provided an initial starting point for coding, with the potential for additional topical focus areas to emerge during the content analysis.

Theoretical framework

In order to gain a greater understanding of the discourse patterns in international education publications, we considered Foucault's theories of power and knowledge related to discourse along with Wallerstein's world-systems analysis. Foucault (1980, 2002) posited that there is a distinct relationship between knowledge and power, as what is valued by those who hold power will be reproduced in the discourse and knowledge of disciplines and wider society, while what is not valued as knowledge by those in power will be subsequently discarded. In addition, Wallerstein's (2004) world-systems analysis emphasizes the complexity of modern social systems and

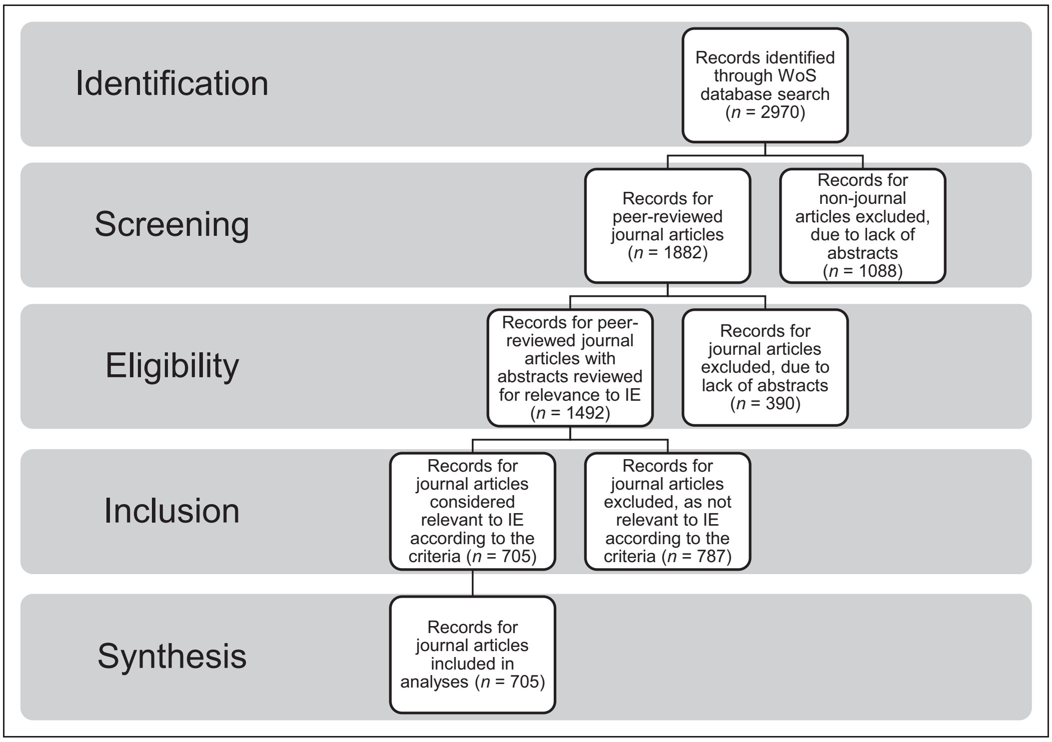

Figure 1. PRISMA flow diagram describing the literature search and the selection of eligible records for analysis (adapted from Moher et al., 2009). Note: PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; WoS = Web of Science; IE = international education.

considers the world system (rather than national systems) as a primary unit of analysis, dividing the world into core, semi-periphery, and periphery countries with established mechanisms to benefit the core. As this research focuses on current academic discourse recognized in the field, and much of the research and scholarship in international education may be dominated by core (i.e. Global North, anglophone) countries, these theories can help us to critically examine issues of power in international education scholarly discourse by identifying where the research comes from and what topics the research focuses on, which can subsequently reveal areas that may deserve more attention.

Method

A systematic quantitative approach

A systematic quantitative approach to reviewing literature is *systematic* as the review process is clearly articulated, reproducible, and structured to follow a series of explicit steps with justifications for the inclusion or exclusion of articles. The approach is *quantitative* as it quantifies and synthesizes patterns from the literature in terms of topical focus areas, locations, research methods, and other variables relative to focusing on the boundaries of knowledge evidenced in the literature (Liberati et al., 2009; Moher et al., 2009). In this review, a systematic quantitative approach was utilized consisting of a five-step process: (1) defining the research aim and objectives; (2) identifying keywords and databases, and establishing the literature selection criteria; (3) searching databases, screening search outcomes against the selection criteria, and refining the inclusion and exclusion criteria; (4) extracting relevant materials from the search outcomes and structuring summary tables; and (5) synthesizing and presenting the findings. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart, adapted from Moher et al. (2009; see also Liberati et al., 2009), was utilized in the search process (see Figure 1). Bibliometric analysis was utilized to synthesize and analyze the initial metadata (i.e. publication types, publication dates, journal titles, keywords), which was followed by content analysis of the titles and abstracts of individual articles (i.e. focus areas, research methods, national contexts, study populations). Basic bibliometric analysis enabled the generation of quantitative holistic information from a larger data set (Wallin, 2005), whereas content analysis enabled us to designate and derive content categories with specific characteristics from large amounts of text. This combination of methods allowed for the sifting of a large volume of data to extract more meaningful patterns and examine trends in the field.

Bibliometric and content analysis

In March 2018, we conducted a comprehensive search using the Web of Science (WoS) Core Collection index database. WoS was chosen as it is one of the most well-respected search tools for identifying research from key scholarly journals in disparate areas (Brint, 2017), and the WoS Core Collection is touted as "the standard data set for 'bibliometric' analysis for identifying and monitoring research trends" (Clarivate, 2020c). As Brint (2017: 639) states: "WoS is a particularly valuable source because it features tools to automatically aggregate publications and citations by authors, disciplines, and institutions." We used the WoS Basic Search to search the Topic field with the search string ("international educat*" OR "global educat*") for all years through 2017. The specific search terms used were chosen as they have the longest history of use and encompass most of the subtopics in the field (Knight, 2012). Truncation symbols were incorporated in the search terms in order to include alternative forms of the terms "education" and "educator(s)."

A total of 2970 publications, with publication dates from 1948 to 2017, were identified from the WoS search. Full citation information, including abstracts, was exported from WoS to Microsoft Excel, which allowed the information to be analyzed both quantitatively (i.e. bibliometrics for publication dates, journal titles, etc.) and qualitatively (i.e. coding for relevance, focus areas, methodologies, etc.). A quick review of WoS-provided bibliometric analyses for the 2970 publication records provided two insights worth noting. First, the publications were produced from 94 countries, yet 95% were produced in English, with a large majority from anglophone nations—the USA ($n = 975$), the UK ($n = 285$), Australia ($n = 265$), and Canada ($n = 167$)—and noticeable contributions from China ($n = 193$), Russia ($n = 125$), Germany ($n = 98$), Spain ($n = 79$), Japan ($n = 56$), and the Netherlands ($n = 55$) rounding out the top-10 producing nations. Second, the publications were diffused across formats, with over 60% ($n = 1882$) classified in WoS as articles. After articles, the most common formats included proceedings papers ($n = 640$), book chapters ($n = 282$), editorials ($n = 177$), and book reviews ($n = 153$).

Abstracts were required for the content analysis, and WoS only provided abstracts in the records for journal articles after 1990. Therefore, all items without abstracts were removed during the screening process, and our final data set was limited to the 1492 articles published from 1991 to 2017. Screening for the eligibility of the 1492 articles involved reviewing their titles and abstracts to determine whether they were relevant to this research and should be included in further analyses. Studies were excluded if the article's topic was not about international education as defined. Of the 1492 articles, 705 were considered specifically relevant to international education and examined in the further analyses. As mentioned previously, a coding scheme was developed to code the retrieved articles for relevance (or not), primary and secondary focus areas (initially using NAFSA's (2020) knowledge communities: Education Abroad, International Education Leadership, International Enrollment Management, International Student and Scholar Services, and Teaching and Learning), and national context(s). Additional analyses, which are beyond the scope of this article, involved coding for research focus (or not), specified research methodology (quantitative, qualitative, mixed methods, etc.), and research population (K–12, higher education, vocational education, or professionals). In coding, each of the authors independently coded half of the research records identified in the search and then employed cross-checking to confirm intercoder agreement on the analysis of the articles. In cases where the main focus of the articles diverged from the initial five codes for the focus areas, the researchers consulted each other for appropriate and consistent terms for coding. We acknowledge that the coding and categorization utilized in the review process was dependent on our backgrounds and interpretations as researchers.

Findings

As mentioned, of the 1492 journal articles identified through WoS, there were 705 articles relevant to international education as defined for this research. As Figure 2 shows, the number of published international education articles increased significantly after 2004. Whereas there were fewer than 50 international education articles published from 1991 to 2002, there has been a sharp rise, with over 100 articles published in both 2016 and 2017.

Focus areas

In examining the articles' focus areas, we coded for both primary and secondary focus. Among the 705 articles, there was strong evidence of alignment with the five initial professionally designated foci, as evidenced in Table 1.

Nearly half of the articles focused on aspects of teaching and learning, and a high number were found to be related to other international education professional areas of responsibility—international student

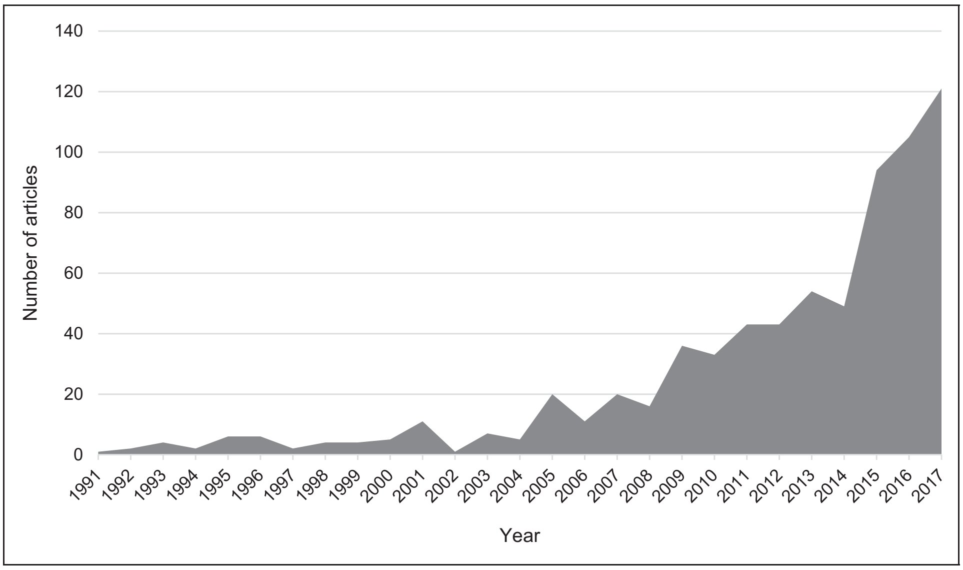

Figure 2. Publication pattern of international education articles, 1991–2017 ($n = 705$).

Table 1. Foci of international education articles ($n = 705$).

Focus area	Number of articles (%)
Teaching and learning	315 (44.7)
International student and scholar services	195 (27.7)
International education leadership	192 (27.2)
Education abroad	165 (23.4)
Health	90 (12.8)
Policy/politics	76 (10.8)
Language learning	35 (5.0)
Knowledge development/dissemination	25 (3.5)
Technology	24 (3.4)
International enrollment management	19 (2.7)
Assessment	13 (1.8)
STEM (science, technology, engineering, and mathematics)	11 (1.6)
History of international education	7 (1.0)
Business	4 (0.6)
Psychology	3 (0.4)
Professional development	3 (0.4)

and scholar services, international education leadership, and education abroad. One exception to this was the comparatively low number of articles that touched on international enrollment management. Additional codes show the prevalence of articles focused on health, policy/politics, language learning, knowledge development/dissemination, technology, assessment, the history of international education, and professional development. There were also three codes related to international education for specific academic disciplines (i.e. STEM, business, and psychology).

The findings from further analyses indicate changing trends regarding international education topics over the past couple of decades (see Figure 3).

Before 2009, there were never more than 10 articles published each year with any one focus. However, from 2009 to 2017, there were significant increases for certain areas. Starting in 2009, the number of articles related to teaching and learning, international student and scholar services, international education leadership, and education abroad consistently hovered around or above 10 each year, peaking with 51 articles related to teaching and learning in 2016. Articles on

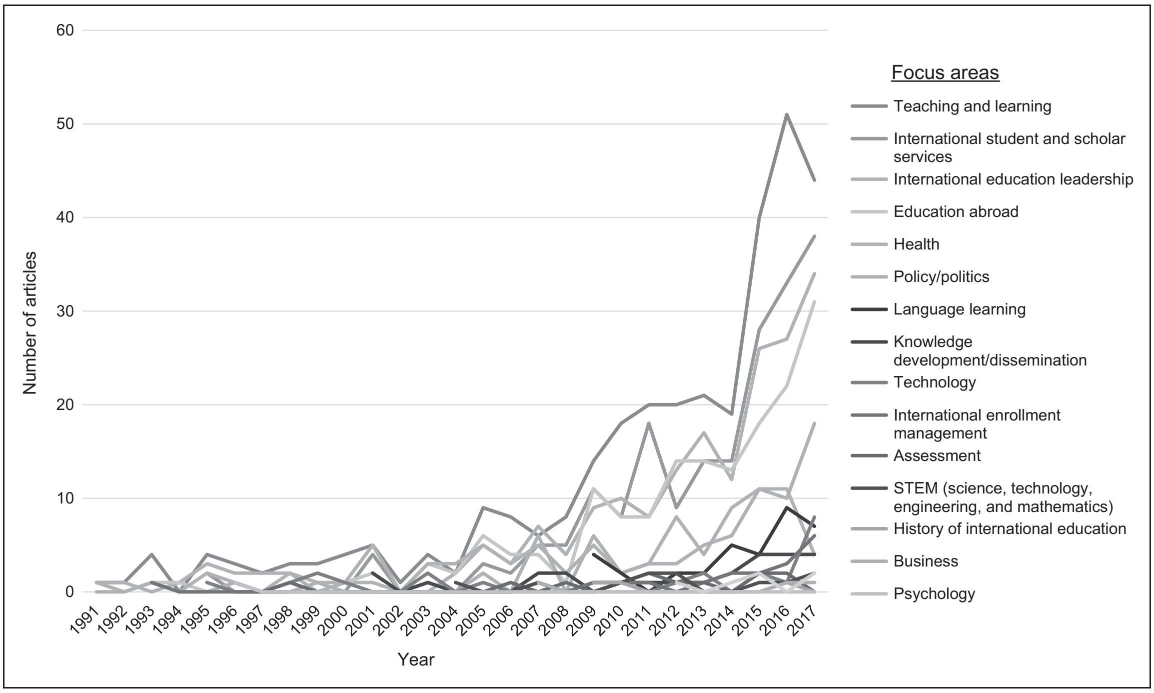

Figure 3. Trends in the foci of international education articles, 1991–2017 ($n = 705$).

health (e.g. as a discipline and mental and physical health during international education experiences) and policy/politics (e.g. national and institutional policies related to international education, including immigration and internationalization) remained consistent but low annually until 2015, when each had 11 articles (jumping to 18 articles related to policy/politics in 2017). Technology (e.g. online and distance learning, and using technology for programs and curricula) became a primary subject for articles in 1995, with consistently few articles on the topic until 2017. The expansion of knowledge development/dissemination articles started in 2001, considering international education as a field and with additional theoretical contributions and discussions. None of the articles reflected language learning (e.g. learning foreign languages, including English) until 2009, yet there was noticeable growth in this area of scholarship in subsequent years. Comparatively few articles were published annually which focused on assessment (for programs and students), international education in academic disciplines (i.e. STEM, business, and psychology), the history of international education, and professional development.

National contexts

In coding for national contexts, we looked at how the authors presented their perspective (i.e. developing programs for international students/scholars in a specific country/region or focusing research on individuals going abroad from a specific country/region). In cases of transnational and online or distance learning, there were often multiple countries mentioned within the articles' titles and/or abstracts. Of the 705 articles reviewed, 431 referenced a national context. As shown in Figure 4, the majority of these articles had a national context centered in anglophone countries—the USA ($n = 96$), Australia ($n = 77$), the UK ($n = 36$), Canada ($n = 28$), and New Zealand ($n = 12$). The highest number of articles in a non-anglophone national context came from China ($n = 24$), Malaysia ($n = 13$), and Russia ($n = 12$), followed by fewer numbers of articles spread across 69 other countries. These findings are explored more in relation to the relevant theories of power and world systems within the discussion.

Journals

The 705 international education articles were published in 359 different journals. The journals with the highest number of international education articles were the *Journal of Studies in International Education* ($n = 49$), *Higher Education* ($n = 23$), and the *International Journal of Educational Development* ($n = 21$). The other 612 articles were spread across 346 other journals, including *Compare: A Journal of*

Figure 4. Distribution of national context perspectives of international education articles ($n = 431$).

Comparative and International Education, the *Journal of International Students*, the *International Journal of Intercultural Relations*, and *Studies in Higher Education*.

We reviewed the websites of the 56 journals that published more than three relevant articles. We found that 84% were produced by the major scholarly publishers: Taylor & Francis ($n = 23$), Wiley ($n = 7$), Elsevier ($n = 6$), Springer ($n = 6$), and SAGE ($n = 5$). Twelve were easily identifiable as being the official journal of a society, association, or organization. Related to disciplinary focus, 32 were focused on education—for example, education generally ($n = 19$); education related to development, globalization, or comparative education ($n = 6$); higher education ($n = 4$); and international education ($n = 3$)—and 24 were related to another discipline—for example, nursing/medicine ($n = 10$), geography ($n = 4$), language ($n = 2$), and politics/migration ($n = 2$). We also found that only a few journals were focused on scholarship about a particular country or geographical region—the Asia-Pacific ($n = 6$), Europe/UK ($n = 2$), and Russia ($n = 1$).

The copyright and archiving policies of the 56 journals that published more than three articles were also reviewed using the Sherpa Romeo website, https://v2.sherpa.ac.uk/romeo/. Four of the journals were fully open access—the *Journal of International Students*, the *American Journal of Pharmaceutical Education*, *BMC Medical Education*, and *Tomsk State University Journal*—while a majority had "green" archiving policies. There was no pattern to the impact factors and rankings of these journals; some had high impact factor rankings, others had low rankings, and many were in the middle for their disciplinary category.

Discussion

The findings of this study indicate interesting trends regarding publication in the field. There were also unexpected results, especially in relation to Foucault's (1980, 2002) theories of power and knowledge, and Wallerstein's (2004) world-systems analysis.

More publications

From this research, it is clear that more work is needed to index publications properly from before 1991 (and even more recently) to include all abstracts and keywords. The noticeable rise in the sheer number of publications over the past three decades means that even when access may be available, it can be extremely difficult to sift through and identify appropriate publications. Many factors have contributed to this rise in the number of publications. First, there has been an increase in the number of academic publications due to the growth of higher education in general and the resulting "academic machine" (Abbott, 2015). There are now more PhD-granting degree programs, producing ever more job-seeking academics, causing increased competition, and raising expectations for the number of publications graduate students and early career professors should publish. This has led to new frameworks in universities and organizations that encourage higher rates of publication (Altbach and De Wit, 2018). In addition, the worldwide economic recession in 2008 contributed to an increase in the number of individuals obtaining higher-level academic credentials (Parker, 2015).

As higher education has expanded, the societal value placed on higher education degrees and certifications has changed (Horowitz, 2018). Using the field of international education as an example, there are now many entry-level positions that require a Master's degree, when not long ago they did not (Friedman and Reza, 2019; Woodman and Punteney, 2016). There has also been a rise in the number of international-education-related graduate programs—including majors and concentrations—at both the Master's and doctoral levels in the past three decades (Friedman and Reza, 2019; Heyl, 2016; Woodman and Punteney, 2016). In addition, many seasoned international education professionals are now earning doctorates while working full-time, in order to advance in the field (Friedman and Reza, 2019; Streitwieser and Ogden, 2016; Woodman and Punteney, 2016). This rise in academic credentials in international education has occurred alongside an increase in publication venues for scholarly discourse in international education over recent decades (Heyl, 2016; Saubert and Ziguras, 2020; Streitwieser and Ogden, 2016), including academic journals, books, professional publications, and online outlets. This results in noticeable patterns (as shown in Figure 2), for, as more journals are created each year, more journals are indexed in databases such as WoS, increasing the relative number of more recent articles to older articles. In addition, publications from other areas of the world and in other languages, as well as a growth in the number of open-access publications, have also contributed to this rise in the number of publications (McNaught, 2015). Publications are now being churned out at such an alarming rate, and from such varied sources and in so many languages, that it is nearly impossible to keep up with everything that is published related to international education.

Expanding topical focus areas

Based on our analyses, Dolby and Rahman's (2008) six approaches are not sufficient to cover scholarly discourse in the field of international education. We utilized broader categories for this study to align with separate professional aspects of the field and recognize the connections between disparate areas of scholarship, and remained open to additional topics for different niche areas of international education research.

Our findings indicate that nearly half of the international-education-relevant articles reviewed were related to teaching and learning. This is not surprising as it could be considered the most general code and it is more common (and expected) for scholars and faculty members to publish than those in practitioner roles, whether in their discipline or more generally. The frequency of coding for different areas of global/international education offices—international student and scholar services, international education leadership, and education abroad—was also quite high. It is interesting to note, however, that comparatively few articles referenced the recruitment and admissions of international students/scholars (e.g. international enrollment management). Following the broad professional categories, we identified a high number of articles overall that were relevant to both health and policy/politics. These findings have important ramifications, as research efforts and collaborations will undoubtedly rise in these areas in relation to COVID-19. Several distinctive topics were also noted during coding as emerging in international education scholarship over the past decade: student identities and experiences (including issues of inequality and discrimination), institutional policies and national politics, partnerships and transnational education, and education in the neo-liberal environment (considering assessment, global citizenship, and workforce development). Such topics are critical to advancing the knowledge of the field and worthy of further inquiry.

This study addresses a small portion of all the academic and professional publications that are relevant to the field of international education. This is due to a combination of (a) authors not including "international education" or "global education" in their abstracts or as keywords for their work; (b) search engines such as WoS, Scopus, and Google Scholar not assigning metadata for works on international education experiences and programs; and (c) tools such as WoS not including much scholarship produced outside the Global North. For example, a quick search of WoS for the terms "international student*" and "study abroad" reveals thousands of results that were not included and analyzed in this study's data set; yet, in relation to these international education subfields, it should be recognized that study abroad and international students both involve student mobility and are integral parts of international education, and efforts should be made to tag articles with appropriate subject headings and keywords that could help to make this relationship clear. Further research is needed as to why authors and bibliometric databases have not made such necessary connections to the larger field. Some authors may also be focused on international education topics in their own academic disciplines (i.e. study abroad for business students or international students in STEM disciplines) and miss connecting to the wider scholarly discourse in international education. With this in mind, it would be beneficial to consider how authors and journals tag content for relevance in order to make content more discoverable for all.

Inequality

As knowledge is power and what is valued by those who hold power is reproduced in the discourse and knowledge of disciplines and wider society (Foucault, 1980, 2002), our findings have implications regarding inequality in power and knowledge across the published discourse in international education. Being aware of the focus areas in international education publications allows us to more easily analyze what is being proffered and valued in the scholarly discourse, and what is being obfuscated and discarded. For example, our analysis demonstrates the clear delineation of international education scholarly discourse worldwide between countries from the core, semi-periphery, and periphery (Wallerstein, 2004). As expected, much of the research and scholarship in international education is dominated by core (i.e. Global North, anglophone) countries, whereas comparatively little scholarship is identified from non-core countries. This is troubling, as it is important to consider perspectives from across the world and in languages other than English, especially in a field such as international education, which is interdependent on both national and global interests.

One factor that is contributing to this problem is that the WoS database, like most research databases, primarily indexes anglophone scholarship created in Global North countries. Scholarly journals from (semi-)periphery countries are not always included in major indexing tools (Brint, 2017; Gray, 2010). This has led to a movement in different regions to develop home-grown search tools that address this disparity (e.g. SciELO–Scientific Electronic Library Online and Redalyc in Latin America and Africa Journals Online in Africa). In 2015, WoS launched the Emerging Sources Citation Index and incorporated it into the WoS Core Collection in order to extend coverage beyond core countries to "cover all disciplines and range from international and broad scope publications to those that provide deeper regional or specialty area coverage" (Clarivate, 2020b). However, according to data presented on the WoS website (Clarivate, 2020a, 2020b), as of 2020, this accounts for only approximately 4% of the database's records.

A limitation of this study is that it was conducted and written in English. Although we tried to include publications from other languages by using a search tool such as WoS, which includes languages other than English, search tools in general tend to be heavily biased towards anglophone scholarship from the Global North. Over a decade ago, Dolby and Rahman (2008: 679) noted that much of the available research is published between core anglophone nations, and anglophone scholars tend to "contribute disproportionately to journals and books published in English." More recently, others (Bedenlier et al., 2018; Jooste and Heleta, 2017; Kudo et al., 2017; Tight, 2017) have made similar mention of the biased tendency towards scholarship from the Global North and research written in English, even as "there has been a recent increase of information being disseminated from Asia, Latin America, and Africa" relevant specifically to international education (De Wit and Urias, 2012: 101). Our research demonstrates that this bias continues. Therefore, it is especially important when using reference databases such as WoS to acknowledge their limitations in providing access to scholarship from a truly broad range of countries and languages.

Our findings also have implications related to the accessibility of information. Although technology has had an enormous impact on the accessibility of scholarship, and more information is now available to more people in more places, inequality still exists, and many still do not have access to publications that could be essential to their work. For example, content being locked behind subscription paywalls inhibits access to information for individuals and institutions that cannot afford access. This is especially true in many countries outside the Global North. The fact that a majority of the articles analyzed in our study were published by the major commercial scholarly publishers demonstrates the dominance of for-profit academic publishers, as well as the dominance of the Global North and anglophone discourse in the discipline of international education, and the predominance of this content in search engines such as

WoS. Although many of these publishers have "green" open-access archiving policies, most also enforce an embargo of 12–48 months on authors posting to institutional or open-access repositories. In reviewing the journals in our study that published the most articles, only four were open-access journals, available to anyone in the world to access. As international education is an international field, colleagues across the globe should be able to access each other's work from any country or any institution, no matter their economic resources. Fortunately for those seeking wider accessibility to scholarly publications, the importance of open access is rising in higher education, and publishing in an open-access journal is now more desirable and sometimes required by institutions and funding agencies (McKenzie, 2019; Nelson, 2013).

Conclusion

As international education is a field which is both practical and theoretical, practitioners and scholars need to be aware of the state of scholarship for both current topics and emerging trends. Therefore, it is important for authors and citation indices to code international education scholarship appropriately in order for everyone to be able to identify relevant international education research. This article has reviewed published international education literature indexed in WoS to identify key topics and publication patterns, and has identified potential gaps and inequities in current scholarly discourse. The findings reveal that there has been a significant increase in international education publications over the past two decades, with evolving trends regarding topical foci and methods. Yet there are also publication disparities regarding national contexts and a dearth in representation of publications in languages outside the Global North and anglophone-dominated discourse.

Based on this research, the following recommendations could enhance scholarship in the field of international education. Some of these recommendations focus on discoverability and are achievable by an individual, while others would require significant coordination among institutional stakeholders. At the individual level, authors need to be more intentional when crafting titles and abstracts, and assign author keywords that clearly connect to the broader field and highlight the international education aspects of their work. If an author does not self-identify their work as international education research, instead choosing to utilize only disciplinary or praxis-based terminology, it can be difficult to find relevant research and make necessary connections. At the institutional level, international education needs to create a thesaurus of controlled-vocabulary subject headings that could be consistently applied to the literature in order to make scholarship in journals and databases more discoverable. Taking this even further would be an initiative to create a searchable index and/or repository of international education literature to bring related scholarship together and help solidify international education as a field. Both of these initiatives would require significant resources and coordination among institutional stakeholders, but would also greatly enhance the field. Additionally, the field of international education would benefit from increasing the visibility of scholarship produced outside the Global North and in languages other than English. This could be achieved by pressuring more databases and indexes to include publications from these regions. It could also be achieved by the creation of an international education repository or index that specifically places a priority on including these publications.

Considering the insights gained from this analysis, a number of suggestions for areas of future research have emerged, including examining and clarifying the conceptual links in scholarly discourse across the different subfields of international education (e.g. How does research on international students overlap and differ from research on education abroad?); looking at how power structures of knowledge can both resituate and challenge the primary themes and dominant scholarly discourse in international education; examining the positions and institutions of authors (e.g. Are articles more practice-focused or more teaching/learning- and scholarship-focused based on the professional identities of authors?); and comparing scholarly discourse in international education from different areas of the world (outside the Global North and anglophone contexts). Furthermore, although a great deal of scholarship has been produced since the end of World War II, with significant increases after the end of the Cold War (De Wit and Merkx, 2012; Dolby and Rahman, 2008), comparatively few meta-analysis studies and systematic reviews have included scholarly discourse in the field from before the mid 20th century to go beyond focusing on the history and initial development of the international education field (De Wit, 2002; Sylvester, 2002, 2015). All of the previously identified systematic reviews were focused on articles published over the past two decades, and this study was similarly limited by the range of data available from WoS. Examining how bibliometrics can be used to reflect both current and long-term themes across the field of international education over a longer period of time could be useful.

Enhancing the visibility of international education research and connecting the disparate threads of past and ongoing scholarly inquiry is imperative to building up the field of international education as an academic discipline in its own right. One of the challenges for international education is connecting with other international education scholars and research. This difficulty arises not only because of geography and the international scope of the field, but also because scholars often belong to separate academic disciplines, just as there are long-standing professional divisions among practitioners. By not connecting on a larger level, the scholarly discourse for international education remains fragmented, and it is difficult to identify the larger trends and needs of the field. By better understanding the interrelationships between different areas of international education research, researchers and practitioners can be more purposeful in learning from and contributing to both the academic and professional sides of the field.

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Abstracts

Strategies for checking misinformation: An approach from the Global South

استراتيجيات تدقيق المعلومات الزائفة: نهج من جنوب العالم

أنوب كومار داس، غاياتري دويفيدي، ومانوراما ترايباثي

مجلة الإفلا، 49–1

الملخص:

أصبح التلاعب بالمعلومات لخدمة المصالح الشخصية خطرًا متعاظما. ومن أدواته التضليل الإعلامي، ونشر المعلومات الزائفة، والأخبار الكاذبة، والافتقار إلى الأصالة. وقد يُفضي هذا التلاعب وتشويه الحقائق إلى عواقب وخيمة على المجتمع، لا سيما في بلد متنوع الأعراق مثل الهند. لذا تدعو الحاجة إلى اتخاذ إجراءات صارمة، وإلى إذكاء التوعية للحد من انتشار هذا التلاعب. وقد حفزت وسائل التكنولوجيا هذا الانتشار. وتدرس المؤسسات والمكتبات والحكومات ووسائل الإعلام إيجاد وسائل فعالة تميز الأخبار الكاذبة عن الأخبار الحقيقية. وتتناول هذه المقالة بالتفصيل بعض هذه المبادرات. وتناقش لائحة قواعد تكنولوجيا المعلومات التي وضعتها حكومة الهند عام 2021 (الإرشادات الوسيطة، ومدونة أخلاقيات الوسائط الرقمية) كيفية الحد من هذا النشر المخادع، الذي قد يتكرر في مناطق جغرافية أخرى. وتسلط اللائحة الضوء على هذه القضية، وتؤكد ضرورة محو الأمية الإعلامية والمعلوماتية لدى الجميع؛ ليكونوا أكثر قدرة على تمييز المعلومات في أثناء تلقيها واستخدامها واستيعابها قبل الاستجابة لها. علاوة على أنه يمكن تكرار مبادرات تدقيق الحقائق، ووضع لوائح لتكنولوجيا المعلومات وتبنيها وصياغتها في بلدان أخرى على غرار ما حدث في الهند.

An evaluation of institutional repository development in African universities

تقييم تطوير المستودعات المؤسسية في الجامعات الأفريقية

إيبيكابوي إي بارو، أنتونيا يو.نوابويزي-إيشيدوم

مجلة الإفلا، 49–1

الملخص:

تهدف هذه الدراسة إلى تقييم التطور الذي شهدته المستودعات المؤسسية في مكتبات جامعات في إفريقيا. واستخدمت الدراسة أساليب، منها طرح استبيانات عبر الإنترنت، وتقصي الحقائق في مواقع المستودعات المؤسسية لجمع البيانات من 134 مكتبة جامعية في البلدان الناطقة باللغة الإنجليزية في إفريقيا. وتشير الدراسة إلى أن المستودعات المؤسسية شهدت تطورا متزايدا في البلدان الناطقة باللغة الإنجليزية في إفريقيا. وتضم أغلب هذه المستودعات أعدادًا كبيرة من الرسائل الجامعية والأطروحات، تليها مقالات صحفية، وأوراق المؤتمرات وحلقات العمل. وتشمل التحديات التي تم تحديدها عدم كفاية التسهيلات، وعدم استقرار الاتصال بالإنترنت، وضعف الأموال، ونقص إمدادات الطاقة اللازمة لجمع المواد للمستودعات المؤسسية، فضلا عن الافتقار إلى موظفي تكنولوجيا المعلومات والاتصالات المهرة، والقضايا المتعلقة بحقوق النشر، وعدم وجود سياسات تنظم المستودعات المؤسسية. وتوفر نتائج الدراسة بيانات مهمة، ورؤى ثاقبة حول تطوير المستودعات المؤسسية في المكتبات الجامعية في سياق البلدان النامية، وتقدم اقتراحات لأمناء المكتبات الجامعية، وفرق الإدارة.

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

المجموعات، والرعاية، والعمل الجماعي: تجارب في مجال العمل الميداني التعاوني في دراسات المكتبات

إلين أمبروسون، ولورا رينج، ومارا ثاكر

مجلة الإفلا، 49–1

الملخص:

جنبا إلى جنب مع الجهود المتواصلة للمنح الدراسية في مجال المكتبات الرامية إلى توسعة نطاق فهم التعاون، وإمكانية نقل المجموعات الجماعية، تلاشى إلى حد كبير الحديث عن رحلات أمناء مكتبات لغرض الاقتناء. وفي أوائل عام 2020، سافر ثلاثة أمناء مكتبات من الولايات المتحدة، متخصصين في دراسات جنوب آسيا إلى الهند، تاركين خيار السفر الفردي، ومفضلين نموذج العمل الميداني التعاوني. اعتبر المكتبيون هذه الرحلة بمثابة دراسة حالة، واستفادوا من المؤلفات المنشورة متعددة التخصصات لاستكشاف كيفية تقاطع الهويات، والطبيعة التي تجسد شكل نتائج العمل الميداني في المجموعة الجماعية وأضافوا إلها. كما قاموا بدراسة كيفية تضافر الرعاية المقدمة في الميدان مع الجهود المبذولة لبناء مزيد من المجموعات الأخلاقية. وأخيرًا، قاموا ببحث احتمالات التحول نحو التعاون، ومد نطاقه لكيلا يقتصر على التنسيق، كما قدموا اقتراحات لكيفية دعم منظور العلاقات في عملهم. وعند تقاطع النظرية والممارسة، تساعد هذه المقالة القرّاء على فهم العمل الشامل وراء الدراسات المتعلقة بمجال المكتبات، وتطرح رؤية لتحسين الممارسة في هذا المجال.

Comparison of library studies programs in Croatia and the USA

مقارنة بين برامج دراسات المكتبات في كرواتيا والولايات المتحدة الأمريكية

أنجيلا آر ديفيس، وستيفاني دياز دياز، وراسل أ هول، ومارجيتا وميرسيتا زاكاريجا، وإيرينا أوريم

مجلة الإفلا، 49–1

الملخص:

تصف هذه الدراسة الحد الأدنى من المؤهلات الدراسية اللازمة للالتحاق ببرامج علوم المكتبات والمعلومات في كل من كرواتيا والولايات المتحدة الأمريكية وتقارن بينها. وتُعد المقالة إضافة إلى الأبحاث السابقة في التعليم المقارن، وعلوم المكتبات المقارنة. وتبرز النتائج أوجه الاختلاف والتشابه الملحوظة بين البلدين. ويتسم المسار التعليمي لعلوم المكتبات والمعلومات في كرواتيا بأنه أكثر تنظيماً، ويستلزم الحصول على درجة البكالوريوس إضافة إلى الماجستير، فضلا عن موافقة الجهة المعنية بالدراسات العليا. أما الولايات المتحدة الأمريكية فعادة ما تقتصر على تقديم برامج الدراسات العليا في هذا المجال. كما تتسم برامج علوم المكتبات والمعلومات في كلا البلدين بالمرونة وقابليتها العالية للتكييف حسب الاحتياجات. ويشترط كلا البلدين الحصول على العديد من الدورات التأسيسية في مجال المكتبات، لكن البرامج الكرواتية تركز بقدر أكبر على التكنولوجيا ومناهج إدارة المجموعات. وفي المقابل، تتطلب برامج علوم المكتبات والمعلومات في الولايات المتحدة الحصول على المزيد من الدورات الدراسية الإدارية، وتوفر للطلاب مزيد من المرونة فيما يتعلق باختيار الدورات التدريبية. وقد تساعد هذه المقالة معلمي علوم المكتبات في المدارس في تقييم برامجهم لتلبية الاحتياجات المهنية الحالية والمستقبلية.

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

تبادل المعرفة والنمو في مجتمع مختلط- نهج قائم على رأس المال الاجتماعي: دليل من لاتفيا

جويدو سيتشي، ويورجيس سكيلتيرز، ومارتا سيليكا، وليفا برايس، وكريستا ليسكيفيكا

مجلة الإفلا، 49–1

الملخص:

تبحث هذه المقالة أنماط تبادل المعرفة في المجتمعات المختلطة حيث تتكامل روابط الاتصال الافتراضية وجهاً لوجه. ويعتمد إطار الدراسة على نظرية رأس المال الاجتماعي. ويجري بحث أبعاد الدور الاجتماعي والعوامل التحفيزية في تعزيز تبادل أشكال المعرفة المختلفة على المستوى الفردي. ويُختبر النموذج النظري المقترح من خلال نمذجة المعادلة الهيكلية، ويجري تحليل عينة تتكون من أكثر من 250 فردًا ينتمون إلى مجتمع مستخدمي المكتبة الوطنية في لاتفيا. وجاءت النتائج مؤكدة لمعظم فرضيات النظرية، ولكن ثمة نتائج غير متوقعة - مثل الدور المهم الذي تؤديه العوامل التحفيزية في تعزيز تبادل الأشكال المعقدة للمعرفة - مما يبرز الطابع الخاص للمجتمعات المختلطة.

Croatian adolescents' credibility judgments in making everyday life decisions

مصداقية الأحكام التي يتخذها المراهقون الكرواتيون في حياتهم اليومية

أليكا كولاريك

مجلة الإفلا، 49–1

الملخص:

تهدف هذه الدراسة إلى بحث الكيفية التي يحكم بها طلاب المدارس الثانوية على مصداقية المعلومات التي يحصلون عليها ويستخدمونها في اتخاذ القرارات في حياتهم اليومية. وأجريت مقابلات فردية شبه منظمة لكشف الأسباب التي تدفعهم إلى الاعتقاد بجودة المعلومات ودقتها وفائدتها. وتظهر النتائج تفضيل الطلاب اللجوء إلى المصادر بين الشخصية.

وتكتسي المعلومات مصداقية إذا تم الحصول عليها من مصدر يتسم بالكفاءة والجدارة بالثقة (مثل الخبرة والمعرفة والدقة). ومن المؤشرات الأخرى المهمة لمصداقية المعلومات في حالات المصادر بين الشخصية تمتعها بخصائص تعبر عن الثقة الشخصية وجودة العلاقة مع المصدر. ويُحكم على المعلومات الموجودة على وسائل التواصل الاجتماعي من خلال إشارات نشأت اجتماعيًا، تعكس مدى شهرتها وشعبيتها في أوساط المستخدمين. وأخيرًا، يجري التحقق من مصداقية المعلومات عن طريق التدقيق في اتساق مصادرها المتعددة.

Open government data initiatives in the Maghreb countries: An empirical analysis

مبادرات البيانات الحكومية المفتوحة في دول المغرب العربي: تحليل تجريبي

السيد الصاوي، احمد شحاتة

مجلة الإفلا، 49–1

الملخص:

تستكشف هذه المقالة الممارسات المتبعة في حفظ البيانات ومشاركتها في بوابات البيانات المفتوحة في بلدان المغرب العربي، وتقيّم ما إذا كان هيكلها وتنظيمها متوافقين مع أهداف هذه البوابات. وقد وُضعت مجموعة من الخصائص لابد من توفرها في بوابات البيانات المفتوحة، ثم استُخدمت هذه الخصائص كإطار لتحليل هيكل بوابات البيانات المفتوحة وتنظيمها في بلدان المغرب العربي. واعتمدت الدراسة نهج تحليل المحتوى لتحليل محتوى خمس بوابات بيانات مفتوحة (في ليبيا وتونس والجزائر والمغرب وموريتانيا). وتشير النتائج إلى أن بوابات البيانات المفتوحة في بلدان المغرب العربي توفر بيانات من مختلف الوزارات والمجتمعات والمنظمات المحلية. كما تشير النتائج أيضًا إلى أن هذه البوابات المفتوحة في كل من الجزائر والمغرب تفتقر إلى ترجمة إنجليزية للمحتوى، مما يؤثر على المتحدثين غير الناطقين باللغة العربية. علاوة على ذلك، ما يزال اعتماد هذه السياسات في أطواره الأولى. وتكمن أصالة الدراسة في أنها الأولى التي تركز على بلدان المغرب العربي، ومدى ما أحرزته من تقدم في تبني البيانات المفتوحة وإتاحتها.

Knowledge management, organizational culture and job performance in Nigerian university libraries

إدارة المعرفة والثقافة التنظيمية والأداء الوظيفي في مكتبات الجامعات النيجيرية

سيبريان إفيني أوجو، أنتونيا إجيكيمي

مجلة الإفلا، 49–1

الملخص:
يتمثل الغرض من هذه الدراسة في بحث تأثير دور الثقافة التنظيمية كحلقة وسيطة في العلاقة بين ممارسات إدارة المعرفة والأداء الوظيفي لأمناء المكتبات الأكاديمية في المكتبات الجامعية في نيجيريا. وقد استخدمت الدراسة منهجية البحث الكمي. واُقترح ما مجموعه خمس فرضيات للاختبار، وتم تطوير نموذج مفاهيمي لاختبار هذه الفرضيات عند مستوى 0.05 من الأهمية. كما أُجري استبيان، ووافق ما مجموعه 230 مكتبيًا أكاديميًا على المشاركة في الدراسة. وعقب تحليل البيانات التي جمعت باستخدام البرنامج الاحصائي SPSS، أظهرت نتائج الدراسة أن إدارة المعرفة والثقافة التنظيمية قد أسهمتا إسهاما إيجابيا ومهما في الأداء الوظيفي. وتقدم نتائج الدراسة أيضًا أدلة قاطعة تبرهن على تأثير الثقافة التنظيمية على العلاقة بين إدارة المعرفة والأداء الوظيفي لأمناء المكتبات الأكاديمية في المكتبات الجامعية في نيجيريا.

Academic libraries and the need for continuing professional development in Botswana

المكتبات الأكاديمية والحاجة إلى التطوير المهني المستمر في بوتسوانا

أولوغباد أولادكون، نيو باتريشيا موكو

مجلة الإفلا، 49–1

الملخص:
من المتوقع أن يتمتع أمناء المكتبات الأكاديميين بالمهارات اللازمة لأداء المهام المنوطة بهم، ومن ثمّ تقديم خدمات عالية الجودة وسريعة للمستخدمين. وتهدف هذه الدراسة إلى تحديد كيفية فهم المكتبيين الأكاديميين للتغييرات التي تطرأ على مهنتهم، والحاجة إلى التطوير المهني المستمر؛ ودراسة تصور أمناء المكتبات لجودة تعليم علوم المكتبات والمعلومات في بوتسوانا؛ ومعرفة إلى أي مدى يؤدون مختلف الوظائف المكتبية والمهنية. اعتمد نموذج البحث نهجًا إيجابيًا.
واستخدمت الدراسة طريقة التعداد في جمع البيانات الكمية من أمناء المكتبات الممارسين، كما أمكن الحصول على بيانات نوعية من خمسة من رؤساء المكتبات. وبرهنت الدراسة على التغييرات الكبيرة التي طرأت على وظائف أمناء المكتبات على مر السنين، ومن ثمّ ضرورة عملهم حاليًا بجدية أكبر، واكتساب مزيد من المهارات، وأداء مهام جديدة. وفي ظل غياب استراتيجية مناسبة للتطوير المهني المستمر، لوحظ قصور في المعرفة اللازمة لأداء مهام تكنولوجيا المعلومات وغيرها من المهام البارزة. وقد قدمت الدراسة التوصيات المناسبة.

Community-driven care of Lanna palm-leaf manuscripts

الرعاية المجتمعية لمخطوطات سعف النخيل في لانا

بيابات جاروسوات جاروسوات، وأندرو كوكس

مجلة الإفلا، 49–1

الملخص:
تعد مخطوطات سعف النخيل جزءًا مهمًا من تراث ثقافة لانا في شمال تايلاند. وتهدف هذه المقالة إلى استكشاف الممارسات والمواقف تجاه إدارة مخطوطات سعف النخيل في ثلاث مجتمعات في شمال تايلاند؛ بهدف تطوير فهم مجتمعي للرعاية المستدامة لهذه المخطوطات.
وأجرت الدراسة مقابلات تم تحليلها موضوعياً. وتبين أن مشاركة المجتمع تُعزى إلى كل من المعتقدات البوذية لاستحقاق الجدارة وإلى القيمة الثقافية لمخطوطات سعف النخيل. كما كان للقيادة دور مهم أيضًا، على الرغم من اختلاف نماذج القيادة في كل حالة. وتؤدي المنظمات الخارجية مثل الجامعات دورًا رئيسيًا في فهرسة هذه المخطوطات وحفظها واستخدامها. وعلى الرغم من القيمة التي تضفيها الرقمنة على أهمية المنظمات الخارجية فإنها لا تعزز حقًا إمكانيو وصول المجتمع إلى هذه المخطوطان. وتعقيبا على الدوافع والتحديات الماثلة في القرى الثلاث، اقترُح نموذج للرعاية المجتمعية لمخطوطات سعف النخيل.

Preservation and conservation of indigenous manuscripts

حفظ المخطوطات الأصلية وصيانتها

سونيل تياجي

مجلة الإفلا، 49–1

الملخص:
تسعى هذه الدراسة إلى بحث حالة حفظ تراث المخطوطات الأصلية وصيانتها في المكتبة المركزية في معهد جاين فيشفا بهاراتي (جامعة ديميد)، راجستان، الهند، لاسيما المخطوطات غير المعروفة للعالم الأكاديمي. وقد أُجريت دراسة استقصائية للمخطوطات لفحص حالتها المادية. كما أجريت مقابلات منظمة مع تسعة موظفين من قسم المخطوطات للحصول على معلومات بشأن مجموعات المخطوطات وتقنيات الحفظ والصيانة المستخدمة في الوقت الراهن. وتشير النتائج إلى أن تقنيات الحفظ والصيانة الشاملة المستخدمة في المكتبة كانت على مستوى مرض وفقًا لإجراءات التشغيل القياسية للبعثة الوطنية للمخطوطات. وتسهم هذه الدراسة في فهم طبيعة مجموعات المخطوطات وتقنيات الحفظ والصيانة المستخدمة.

Data science education programmes in Middle Eastern institutions: A survey study

برامج تعليم علوم البيانات في مؤسسات الشرق الأوسط: دراسة استقصائية

محمود شريف زكريا

مجلة الإفلا، 49–1

الملخص:
في سياق مواكبتها للاتجاهات الراهنة في التعامل مع البيانات في الأوساط الأكاديمية، تقوم العديد من المؤسسات البحثية والكيانات التجارية حول العالم بتطوير برامج جديدة لسد الفجوات في الطلب على القوى العاملة في تخصصات محددة، ويشمل ذلك تنظيم البيانات، والبيانات الضخمة، وإدارة البيانات وعلوم البيانات وتحليلات البيانات. وبالتالي، تهدف هذه الدراسة إلى الكشف عن واقع تعليم علوم البيانات في الشرق الأوسط، وتحديد الفرص والتحديات الماثلة لتدريس علوم

البيانات في المنطقة. وفي أثناء إجراء هذه الدراسة كان هناك 13 بلدا في الشرق الأوسط يقدم 48 برنامجًا لعلوم البيانات، وتشير النتائج إلى الاستخدام المكثف لكلمتي "بيانات" و "تحليلات" في عناوين هذه البرامج. وفيما يتعلق بالتخصصات الأكاديمية لبرامج علوم البيانات، توصلت الدراسة إلى أنها تُقدم في مجموعة متنوعة من الكليات، لا سيما كليات علوم الحاسب وتكنولوجيا المعلومات والأعمال. علاوة على ذلك، تبين أن علوم الحاسب هي الاتجاه السائد في هذه البرامج. وتتداخل برامج علوم البيانات بشكل كبير مع البرامج الأخرى، لاسيما برامج الإحصاء وعلوم الحاسب؛ جرّاء الطبيعة متعددة التخصصات لهذا المجال. وتتفاوت كليات علوم البيانات في الشرق الأوسط من حيث عناوين البرامج، وأوصافها، وكتالوج دوراتها، وهياكل مناهجها الدراسية، وأهداف دوراتها. وبوجه عام، قد تكون هذه الدراسة مفيدة لأولئك الذين يسعون إلى إنشاء برنامج لعلوم البيانات، أو تعزيز مناهج علوم البيانات على المستويين الجامعي والدراسات العليا.

Examining the status of prison libraries around the world: A literature review

دراسة حالة مكتبات السجون حول العالم: استعراض المؤلفات المنشورة

سيد توسيف حسين، وهنا بتول، وعطا الرحمن، وسيدة كيران الزهراء، وخالد محمود

مجلة الإفلا، 49–1

الملخص:
تهدف هذه الدراسة إلى استعراض المؤلفات المنشورة، وتسليط الضوء على حالة مكتبات السجون في جميع أنحاء العالم. وتسعى الدراسة جاهدة إلى اعتماد نهج شامل أثناء استعراض هذه المؤلفات من أجل مسح الوضع الراهن جغرافيا. وقد تم استعراض المؤلفات المنشورة عن مكتبات السجون في مجلات المكتبات والمعلومات المحلية والدولية. كما استعان الباحثون بمصادر أخرى، مثل الكتب، الرسائل العلمية، والأطروحات، ووقائع المؤتمرات، والمواقع الإلكترونية للمكتبات، والأفراد والمنظمات المهنية، مثل جمعية المكتبات الأمريكية، جمعية المكتبات البحثية والجامعية، والإفلا. وتضمنت قواعد البيانات المستخدمة ملخصات في مجال علوم المكتبات والمعلومات، والمكتبات، وملخصات علوم وتكنولوجيا المعلومات، إمرالد Emerald، جستور JSTOR، الباحث العلمي لجوجل Google Scholar، وريسيرش جيت ResearchGate. وجاء ترتيب الكلمات الرئيسية المستخدمة في البحث على النحو التالي "مكتبات أماكن الحبس"، و"مكتبات السجون"، و"مكتبات المؤسسات الإصلاحية"، و"مراكز إعادة التأهيل". وبوجه عام، تشير النتائج إلى أن وضع مكتبات السجون في الولايات المتحدة الأمريكية والمملكة المتحدة وأوروبا وآسيا (المناطق الحضرية فقط) أفضل كثيرا بالمقارنة مع وضعها في مناطق أخرى من العالم. ويُعزى هذا إلى توافر الموارد، وإمكانية الوصول إلى الإنترنت، والتكنولوجيا، والفهارس الآلية، والتعاون مع مكتبات أخرى؛ مثل المكتبات العامة، فضلا عن توفر الميزانيات العادية لإدارة شؤون المكتبات بسلاسة. ويعد نقص الموظفين المهنيين، وعدم توفر مساحة للمكتبات، ومحدودية المجموعات، وقضايا الرقابة، وضعف الميزانية، وغياب دور جمعيات المكتبات في البلدان النامية، وضعف التعاون بين مكتبات السجون والمكتبات العامة من أهم الأسباب التي أدت إلى الوضع الراهن في مكتبات السجون. وتُعد هذه الدراسة فريدة من نوعها لأنها تسلط الضوء على وضع مكتبات السجون في جميع أنحاء العالم من خلال عدسة أوسع نطاقا، مع التركيز على المعايير والخدمات المقدمة، وعلى الصعوبات الماثلة، فضلا عن التوصيات التي قدمها الباحثون.

A systematic review of crisis management in libraries with emphasis on crisis preparedness

استعراض منهجي لإدارة الأزمات في المكتبات مع التركيز على الاستعداد للأزمات

سمية أخشيك، رضا رجبالي بيغلو

مجلة الإفلا، 49–1

الملخص:
يعد الاستعداد للأزمات أمرًا من الأهمية بمكان لإدارة الأزمات في جميع المنظمات، بما في ذلك المكتبات. ويجب أن تتخذ المكتبات قرارات بشأن حالات الأزمات، وهو ما يتطلب التخطيط والاستعداد لهذه لأزمات. ويهدف هذا الاستعراض المنهجي إلى تحليل القضايا الرئيسية التي تساعد المكتبات في اتخاذ القرار في أوقات الأزمات وتحديدها. تم تحديد ما مجموعه 2900 دراسة في الفترة من 1985 إلى 2020. وعقب تطبيق معايير الاشتمال والاستبعاد، أُدرجت 44 دراسة في عملية الاستعراض النهائي. وتشير نتائج الدراسة إلى أن التركيز ينصب بصورة متكررة، فيما يتعلق بإدارة الأزمات، على موضوعات منها تعليمات الاستعداد، وبرامج التدريب، وتقييم أنشطة الاستعداد، والعوامل المهمة في إدارة الأزمات. علاوة على ذلك، ركزت غالبية الدراسات بصورة رئيسية على الأزمات الاقتصادية أو المالية، عوضا عن الأزمات الطبيعية أو الاجتماعية أو الأزمات المتعلقة بالصحة. كما شهدت الفترة ما بين عامي 2008 و2017 زيادة كبيرة في عدد المقالات المنشورة، التي تنتمي في الغالب إلى مكتبات أكاديمية وبحثية. إضافة إلى ذلك، تزايدت مؤخرا المقالات التي تتناول الاستعداد للأزمات وإدارتها في هذه الأبحاث.

A review of international education literature: Interdisciplinary and discovery challenges

استعراض المؤلفات المنشورة في مجال التعليم الدولي: تعدد التخصصات، والتحديات الماثلة أمام الاكتشاف

شانا سوبرت ليز كوبر

مجلة الإفلا، 49–1

الملخص:
قد يتعذر الوصول إلى الأبحاث ذات الصلة بمجال التعليم الدولي بسبب طبيعة المجال، وكيفية فهرسة العمل الأكاديمي. وتستعرض هذه المقالة المؤلفات التعليمية الدولية المنشورة لتحديد الموضوعات الرئيسية وأنماط النشر، إلى جانب تحديد الفجوات وأوجه عدم المساواة المحتملة في الخطاب الأكاديمي الراهن. وقد لوحظ ان التحليلات تستخدم عبارتين أساسيتين بتكرار ملحوظ؛ هما "التعليم الدولي" و "التعليم العالمي" لاسترجاع السجلات من شبكة العلوم. ومن بين 1492 مقالاً خضع للاستعراض ونُشر في المجلات العلمية (في الفترة من 1991 إلى 2017)، كشفت التحليلات أن عدد المقالات ذات صلة بمجال التعليم الدولي لا يتجاوز 705 مقالة. وتظهر التحليلات الإضافية للبيانات الببليومترية زيادة كبيرة في معدلات النشر بشأن التعليم الدولي على

مدى العقدين الماضيين؛ والاتجاهات المتطورة فيما يتعلق بالبؤر والأساليب الموضوعية؛ والتفاوتات في النشر فيما يتعلق بالسياقات الوطنية واللغات خارج العالم. وتختتم المقالة بتقديم توصيات بشأن تحسين قابلية الاكتشاف، وربط المجالات المختلفة لبحوث التعليم الدولي على نحو أفضل، وتوسيع رقعة الخطاب العلمي ليشمل تمثيلاً أكثر تنوعًا.

Strategies for checking misinformation: An approach from the Global South

错误信息核查策略　发展中国家采取的办法

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IFLA Journal, 49–1, 3-17

摘要

通过操纵信息来满足个人利益是?种日益严重的威胁，包括虚假信息、错误信息和虚假新闻，这些内容缺乏真实性　这种操纵和歪曲事实的行为会对?个社区产生严重后果，尤其是在印度这样?个多元化的国家　该国呼吁采取严格措施并提高公众意识来遏制这种情况的蔓延　技术进?步促进了此类信息的传播　机构、图书馆、政府和媒体都在探索有效方法来区分虚假新闻和真实新闻　本文详细介绍了?些举措，其中讨论了印度政府2021年发布的信息技术规则(《中介媒体准则和数字媒体道德规范》)，该文件旨在遏制欺骗性信息的传播　本文着重介绍了这?问题，并强调应提高所有人的媒体和信息素养，在接受、消费和吸收信息时提升鉴别力，并作出妥善应对　此外，印度采取和制定的事实核查举措和信息技术规则也可以在其他国家推广

An evaluation of institutional repository development in African universities

非洲高校机构知识库发展评估

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IFLA Journal, 49–1, 18-38

摘要

本研究旨在评估非洲高校图书馆机构知识库的发展情况　作者使用在线问卷和机构知识库现场调查方法，从非洲英语国家的134所高校图书馆收集数据　研究发现，在非洲英语国家，机构知识库的发展趋势越来越明显　大多数机构知识库包含大量的学位论文，其次是期刊文章、会议和研讨会论文　这些机构知识库面临的挑战包括基础设施?完善、互联网连接?稳定、缺乏资金、供电?稳、收集文献面临的问题、缺乏??的信息通信技术人员、版权问题以及缺乏相关的机构知识库政策等　该研究结果为发展中国家高校图书馆机构知识库的发展提供了重要数据和见解，并为高校图书馆员和管理团队提供了建议

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

馆藏、保护?集体合作　图书馆学区域研究中合作开展实地工作的实验

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IFLA Journal, 49–1, 39-51

摘要

图书馆领域对于开展合作，以及这种合作对于实现集体馆藏转型的潜力的理解?断加深，但有关图书馆员的实地采访工作研究?足　2020年初，?位美国的南亚研究馆员前往印度，他们没有选择独自出行，而是合作开展实地考察　本文作者以这次旅行作为案例研究，通过跨学科文献探索交叉身份和实地调查的性质对集体馆藏成果产生何种影响　作者思考了如何利用该领域的前瞻性保护方法开展馆藏建设　最后，作者考虑了开展更广泛的合作(而?仅仅是协调)的可能性，并就如何在工作中采用关系视角提出了建议　在理论和实践的结合方面，本文帮助读者理解区域研究图书馆学背后的整体工作，并提出了改进该领域实践的愿景

Croatian adolescents' credibility judgments in making everyday life decisions

克罗地亚青少年在日常生活决策中的可信度判断

艾丽卡　科拉里克(*Alica Kolaric*)

IFLA Journal, 49–1, 52-60

摘要

本研究旨在调查高中生如何判断日常生活决策所依据的信息的可信度　作者通过半结构化的个人访谈了解到受访者对信息质量、准确性和有用性的判断标准　结果表明，学生更倾向于使用人际间交流的信息　如果信息来源方表现出明显的胜任力和可信度特征(如??技能、知识和严谨性)，所获信息被认为是可信的　人际交流信息可信度的其他重要指标包括能够体现个人信任以及?信息

来源方的关系质量的特征　社交媒体信息是通过社会面线索来判断的，即来源方在用户社群中表现出的声誉和人气　最后，用户通过核查多方信息的?致性来验证其可信度

Open government data initiatives in the Maghreb countries: An empirical analysis

马格里布地区开放政府数据举措　实证分析

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IFLA Journal, 49–1, 61-73

摘要

本文探讨了马格里布地区在开放数据门户中保存和共享数据的做法，并评估了其组织结构是否符合这些门户的目标　文中探讨了开放数据门户具备的?些硬性特征，并将这些特征用作分析马格里布地区开放数据门户组织结构的框架　研究采用内容分析方法，分析了五个国家(利比亚、突尼斯、阿尔及利亚、摩洛哥和毛里塔尼亚)开放数据门户的内容　结果表明，马格里布地区的开放数据门户提供来自?同部门、当地社群和组织的数据　另外，阿尔及利亚和摩洛哥的政府开放数据门户缺乏将内容翻译成英语的能力，对非阿拉伯语用户产生了影响　此外，开放数据政策仍处于早期阶段　本文的独创性在于，这是第?项关注马格里布地区及其在使用和发布公开数据方面的进展程度的研究

Comparison of library studies programs in Croatia and the USA

克罗地亚和美国图书馆学课程对比

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IFLA Journal, 49–1, 74-86

摘要

本文介绍并对比了克罗地亚和美国的图书馆情报学课程的最低教育要求，对之前的比较教育和比较图书馆学方面的研究作出了补充　研究结果表明，两国之间存在显著的差异，但也有相似之处　克罗地亚的图书馆情报学教育更加结构化，提供学士和硕士学位，以及研究生证书　美国通常只提供该领域的研究生学位课程　两国的图书馆情报学课程通常较为灵活，可灵活定制　两国都设置了?些图书馆学的基础课程，但克罗地亚的课程更偏向于技术和馆藏管理　相比之?，美国的图书馆情报学教育设置了更多的管理课程，并在课程选择方面为学生提供更大的灵活性　本文可以帮助图书馆学院的教育人员进行课程评估，从而满足当前和未来的??需求

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

混合社群中的知识交流和增长——基于社会资本的方法　以拉脱维亚为例

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IFLA Journal, 49–1, 87-98

摘要

本文研究了混合社群中的知识交流模式，其中线?和线?交流互为补充　研究框架以社会资本理论为基础　本文从个人层面调查了社会资本维度和激励因素在促进?同形式知识交流中的作用，通过结构方程模型对所提出的理论模型进行了检验，并对拉脱维亚国家图书馆用户群体中超过250人的样本进行了分析　结果证实了大多数理论假设，但也有?些意料之外的结果，例如激励因素在促进复杂形式知识交流中的相关作用，凸显了混合社群的特殊性质

Knowledge management, organizational culture and job performance in Nigerian university libraries

尼日利亚大学图书馆的知识管理、组织文化和工作绩效

塞普里安　艾菲安尔　乌格武*(Cyprian Ifeanyi Ugwu)*，安?尼亚　艾吉克米*(Anthonia Ejikeme)*

IFLA Journal, 49–1, 99-116

摘要

本研究旨在探讨组织文化对尼日利亚高校图书馆知识管理实践?学术馆员工作绩效之间关系的调解作用　本文采用了定量研究方法，提出了五个假设，并开发了?个概念模型，根据0.05的显著性水平来检验这些假设　本文采用问卷调查的方法，共有230名高校图书馆员同意参?研究　作者使用SPSS对收集到的数据进行分析　结果表明，知识管理和组织文化对工作绩效产生了显著的积极影响　研究结果还有力表明了组织文化对尼日利亚高校图书馆知识管理和学术馆员工作绩效之间关系的影响

Academic libraries and the need for continuing professional development in Botswana

博茨瓦纳学术图书馆?持续职?发展

奥鲁巴德 奥拉多昆(*Olugbade Oladokun*)，尼奥 帕特里夏 穆克(*Neo Patricia Mooko*)

IFLA Journal, 49–1, 117-131

摘要

学术图书馆员应熟练掌握工作技能，并及时向用户提供优质服务 本研究旨在明确学术图书馆员对其职?变化的理解以及持续职?发展的必要性 了解博茨瓦纳图书馆员对本国图书馆情报学教育质量的看法 揭示学术图书馆员履行?同图书馆和??职能的程度 本文的研究范式采用了实证方法，使用普查手段，向执?图书馆员收集定量数据，并向5名图书馆馆长收集定性数据 研究发现，近年来，图书馆员的工作发生了重大变化，如今他们需要付出更多努力、学习更多技能并执行新的任务 由于没有合适的持续职?发展策略，图书馆员缺乏足够的知识来开展信息技术和其他重要工作 本文据此提出了相应的建议

Community-driven care of Lanna palm-leaf manuscripts

社群驱动的兰纳贝叶经保存工作

皮亚帕特 贾鲁斯瓦特 贾鲁斯瓦特(*Piyapat Jarusawat Jarusawat*)，安德鲁 柯克斯(*Andrew Cox*)

IFLA Journal, 49–1, 132-142

摘要

贝叶经是泰国北部兰纳文化遗产的重要组成部分 本文旨在探讨泰国北部?个社群管理贝叶经的做法和态度，从而加深社群对贝叶经可持续保存的理解 研究采用了访谈方法，并对访谈内容进行了主题分析 结果表明，佛教对于积累功德的信仰和贝叶经的文化价值是社群参?的基础 领导力也很重要，尽管?同情况?的领导力模式各?相同 大学等外部组织在贝叶经的编目、保存和使用方面发挥着关键作用 数字化虽然对外部组织的价值至关重要，但并?能真正为社群提供获取便利 本文根据这?个村庄在开展此项工作中面临的有利因素和挑战，提出了社群驱动的贝叶经保存模式

Preservation and conservation of indigenous manuscripts

土著手稿的保存和保护

苏尼尔 泰吉(*Sunil Tyagi*)

IFLA Journal, 49–1, 143-156

摘要

本研究旨在调查印度拉贾斯坦邦耆那教国际学院中央图书馆所藏的土著手稿遗产的保存和保护状况 这些藏品尚未被学术界所知 作者对手稿的物理状况进行了调查，并对手稿部的9名工作人员进行了?次结构化访谈，从而获得有关手稿存藏和保存保护技术方面的信息 调查结果显示，根据印度”国家手稿项目”的标准操作流程，图书馆采用的保存保护技术总体令人满意 研究还介绍了手稿藏品的性质以及手稿的保存保护技术

Data science education programmes in Middle Eastern institutions: A survey study

中?地区数据科学教育项目 调查性研究

穆罕默德 谢里夫 扎卡利亚(*Mahmoud Sherif Zakaria*)

IFLA Journal, 49–1, 157-179

摘要

为了应对当前学术界对于数据的处理趋势，全球各类研究机构和商?实体正在开发新的教育项目，以填补特定学科(包括数据维护、大数据、数据管理、数据科学和数据分析)劳动力需求的缺口 因此，本研究的目的在于揭示中?地区数据科学教育的现状，找出该地区数据科学教育的机遇和挑战 在研究期间，中?地区13个国家提供了48个数据科学教育项目 结果显示，这些数据科学教育项目的名称中大多包含”数据”和”分析”两个词语 研究发现，?此相关的课程在各类学院提供，特别是计算机科学、信息技术和商?学院 计算机科学代表这些课程的主流趋势 鉴于其跨学科性质，数据科学?其他??课程，特别是统计学和计算机科学存在较大的重叠 中?地区各数据科学学院在课程名称、课程描述、课程目录、课程结构和课程目标方面存在差异 从广义?讲，本研究对于想要在本科和研究生两级设立数据科学教育项目或强化原有课程的学院具有参考意义

Examining the status of prison libraries around the world: A literature review

?界各地监狱图书馆现状 文献综述

赛义德 陶西夫 侯赛因(*Syed Tauseef Hussain*)，希纳 巴图尔(*Hina Batool*)，阿塔 拉曼(*Ata ur Rehman*)，赛义达 基兰 扎赫拉(*Syeda Kiran Zahra*)，哈立德 穆罕默德(*Khalid Mahmood*)

IFLA Journal, 49–1, 180-200

摘要

本文对已发表的文献进行了综述，其中重点关注?界各地监狱图书馆的状况 本文力求在提供文献综述的同时采用综合方法，从地理角度考察现状 本文归纳了当地和国际图书馆情报学期刊?关于监狱图书馆的文章 研究人员还参考了其他来源的资料，如图书、学位论文、会议记录、图书馆网站以及个人和??组织，包括美国图书馆协会、大学和研究图书馆协会以及国际图联的资料 文中参考的数据库包括”图书馆情报学文摘”、”图书馆、信息科学和技术文摘”、Emerald、JSTOR、Google Scholar和ResearchGate 检索关键词可归类为”监狱图书馆”、”拘留所图书馆”“惩教机构图书馆”和”康复中心” 总体来说，研究结果表明，??界其他地区相比，美国、英国、欧洲和亚洲(仅城市地区)监狱图书馆的状况要好得多 原因在于这些图书馆拥有充足的资源、网络连接、技术、自动化目录、?公共图书馆等其他图书馆的合作关系，以及确保图书馆工作顺利开展的经常性预算 缺乏??人员、空间?足、藏品有限、审查问题、预算?足、(发展中国家)缺少图书馆协会以及监狱图书馆和公共图书馆之间缺乏合作是监狱图书馆面临的主要问题 本文的独创性在于，它通过广泛的视角凸显了?界各地监狱图书馆的状况，同时重点关注标准、服务和困难，并提出了建议

A systematic review of crisis management in libraries with emphasis on crisis preparedness

图书馆危机管理系统性综述 以灾备为重点

所梅耶 阿卡史克*(Somaye Akhshik)*，礼萨 拉贾巴里 贝格鲁*(Reza Rajabali Beglou)*

IFLA Journal, 49–1, 201-215

摘要

灾备对于包括图书馆在内的所有组织的危机管理来说至关重要 图书馆必须能根据危机状况作出决定，这需要进行规划和事先准备 本文的目的在于分析和确定图书馆在危机时期作出决策所面临的主要问题 作者找出了1985年到2020年间的2900项研究，通过筛选和排除，最终确定44项研究为分析对象 研究结果表明，在危机管理方面受到最多关注的主题包括灾备指导、培训方案、灾备评估以及危机管理中的重要因素 此外，大多数研究主要关注经济或金融危机，而非自然、社会或健康相关危机 在2008年至2017年间，有关高校和研究图书馆的文章发表数量显著增加 这些研究中关于灾备和危机管理的文章最近也有所增加

A review of international education literature: Interdisciplinary and discovery challenges

国际教育文献综述 跨学科?揭示方面的挑战

珊娜 索尔伯特*(Shanna Saubert)*，丽兹 库珀*(Liz Cooper)*

IFLA Journal, 49–1, 216-229

摘要

由于国际教育领域的性质以及学术作品的索引方式，我们很难找到该领域的相关研究 本文对已发表的国际教育相关文献进行研究，旨在找出当前学术研究中的关键主题和出版模式，以及潜在的差距和?平衡 作者以”国际教育”和”全球教育”为关键词进行研究，重点分析了从”科学网”数据库中检索到的记录 调查发现，在1492篇经同行评审的期刊文章(发表于1991年至2017年)中，仅有705篇?国际教育领域相关 对文献计量数据的进?步分析表明，过去20年来，国际教育领域的出版物显著增加 更多地关注主题焦点和方法 在发达国家和英语为主导语言的国家之外存在出版差距 文章最后提出了?些建议，包括提升揭示能力，更好地连接国际教育研究的各个领域，扩大学术研究的范围，提升多样性

Strategies for checking misinformation: An approach from the Global South

[Stratégies pour vérifier la désinformation: une approche pour l'hémisphère Sud]

Anup Kumar Das, Gayatri Dwivedi, manorama Tripathi

IFLA Journal, 49–1, 3-17

Résumé:

La manipulation des informations pour satisfaire à des intérêts personnels constitue un risque croissant. Cette manipulation comporte des éléments de désinformation, des informations erronées et des fausses nouvelles, et elle manque d'authenticité. Manipuler et déformer les faits peut avoir des conséquences graves pour une communauté, en particulier dans le cas d'une nation aussi diverse que l'Inde. Maîtriser la diffusion de fausses nouvelles nécessite des mesures strictes et une certaine vigilance. La technologie favorise aussi une telle diffusion. Les institutions, bibliothèques, gouvernements et médias réfléchissent tous à des moyens de distinguer les fausses nouvelles des informations authentiques. Cet article aborde en

détail certaines de ces initiatives. Il s'intéresse aux Règles de 2021 sur les technologies de l'information (directives intermédiaires et code d'éthique des médias numériques) prises par l'Inde pour freiner une telle diffusion trompeuse. Certains éléments de ces règles peuvent être reproduits dans d'autres régions du monde. L'article met le problème de la désinformation en évidence et insiste sur la nécessité de bien connaître les médias et l'information afin de permettre à tous de mieux discerner les informations reçues et consommées et de les assimiler avant d'y réagir. En outre, les initiatives de vérification des faits et les Règles sur les technologies de l'information prises et établies en Inde peuvent être reproduites dans d'autres pays.

An evaluation of institutional repository development in African universities

[Évaluation du développement des dépôts institutionnels dans les universités africaines]

Ebikabowei E. Baro, Anthonia U. Nwabueze-Echedom

IFLA Journal, 49–1, 18-38

Résumé:

Cette étude a pour but d'évaluer le développement des dépôts institutionnels dans les bibliothèques universitaires d'Afrique. Un questionnaire en ligne et des méthodes d'investigation des sites des dépôts institutionnels ont été utilisés pour rassembler des données auprès de 134 bibliothèques universitaires de pays africains anglophones. L'étude a constaté un développement croissant des dépôts institutionnels dans ces pays. La majorité des dépôts institutionnels contiennent surtout de nombreuses thèses et dissertations, ainsi que des articles de revue et des documents relatifs à des conférences et ateliers. Parmi les problèmes identifiés, il faut noter des équipements inappropriés, des connexions Internet instables, un manque de moyens financiers, une alimentation irrégulière en électricité, les problèmes de collecte de documents pour les dépôts institutionnels, un manque de personnel formé aux technologies de l'information et de la communication, des problèmes de copyright et une absence de stratégies concernant les dépôts institutionnels. Les résultats de l'étude fournissent des informations importantes et donnent une bonne idée du développement des dépôts institutionnels au sein des bibliothèques universitaires de pays en développement. L'article fait des suggestions aux bibliothécaires universitaires et aux équipes de direction.

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

[Collections, attention et intérêt collectif: expériences de travail collaboratif sur le terrain dans le cadre d'études régionales en bibliothéconomie]

Ellen Ambrosone, Laura Ring, Mara Thacker

IFLA Journal, 49–1, 39-51

Résumé:

Alors qu'une meilleure connaissance de la bibliothéconomie permet de mieux comprendre le potentiel d'un travail en collaboration pour transformer la collection collective, les voyages faits par des bibliothécaires en vue d'acquisitions ne sont pratiquement pas évoqués. Début 2020, trois bibliothécaires spécialisées dans l'Asie du Sud-Est et basées aux États-Unis se sont rendues ensemble en Inde, préférant un modèle de travail collaboratif sur le terrain à un déplacement individuel. Utilisant ce voyage comme étude de cas, les auteures se basent sur la littérature interdisciplinaire pour explorer comment des identités croisées et la nature même du travail sur le terrain peuvent donner des résultats pour la collection collective. Elles réfléchissent à la façon dont le fait de favoriser l'attention sur le terrain peut converger avec des efforts en vue de rassembler des collections plus éthiques. Enfin, les auteures envisagent la possibilité d'une collaboration qui irait au-delà d'une simple coordination, et font des suggestions sur la façon dont une perspective relationnelle peut être recommandée pour leur travail. À l'intersection de la théorie et de la pratique, cet article aide les lecteurs à comprendre le travail holistique des études régionales en bibliothéconomie et suggère comment améliorer la pratique sur le terrain.

Croatian adolescents' credibility judgments in making everyday life decisions

[Comment les adolescents croates jugent la crédibilité pour prendre des décisions dans leur vie quotidienne]

Alica Kolaric

IFLA Journal, 49–1, 52-60

Résumé:

Cette étude avait pour objectif d'examiner comment des lycéens jugeaient la crédibilité d'informations obtenues pour prendre des décisions dans leur

vie quotidienne. Des entretiens individuels semi-directifs ont servi à déterminer les raisons pour lesquelles ces lycéens croyaient en la qualité, la précision et l'utilité des informations. Les résultats montrent qu'ils préféraient consulter des sources d'information interpersonnelles. Les informations obtenues étaient perçues comme crédibles quand la source se caractérisait par des propriétés exprimant compétence et fiabilité (notamment expertise, savoir et précision). D'autres indicateurs importants de crédibilité des informations en cas de sources d'information interpersonnelles étaient des caractéristiques exprimant la confiance individuelle et la qualité de la relation avec la source. Les informations sur les réseaux sociaux étaient jugées par des signaux d'ordre social reflétant la réputation et la popularité auprès de la communauté des utilisateurs. Enfin, la crédibilité était vérifiée en contrôlant la consistance des informations provenant de sources multiples.

Open government data initiatives in the Maghreb countries: An empirical analysis

[Initiatives relatives aux données gouvernementales en accès libre dans les pays du Maghreb: une analyse empirique]

Elsayed Elsawy, Ahmed Shehata

IFLA Journal, 49–1, 61-73

Résumé:

Cet article s'intéresse aux pratiques utilisées pour conserver et partager des données sur des portails de données en accès libre dans les pays du Maghreb, et examine si leur structure et leur organisation correspondent aux objectifs de ces portails. Il a fallu déterminer un ensemble de caractéristiques indispensables pour des portails de données en accès libre, puis les utiliser comme cadre pour analyser la structure et l'organisation de ces portails dans les pays du Maghreb. Dans cette étude, l'approche adoptée a consisté à analyser le contenu de cinq portails de données en accès libre (en Lybie, Tunisie, Algérie, Maroc et Mauritanie). Les résultats montrent que dans les pays du Maghreb, ces portails fournissent des données provenant de différents ministères, communautés locales et organisations. Ils indiquent également que les portails de données en accès libre en Algérie et au Maroc manquent de traductions en anglais, ce qui est gênant pour les personnes ne parlant pas arabe. En outre, l'adoption de politiques de données en accès libre n'en est qu'à ses débuts. Cette étude a pour originalité d'être la première consacrée aux pays du Maghreb arabe et à l'étendue de leurs progrès pour adopter des données en accès libre et les mettre à disposition.

Comparison of library studies programs in Croatia and the USA

[Comparaison de programmes d'études en bibliothéconomie en Croatie et aux États-Unis]

Angela R Davis, Stephanie Diaz Diaz, Russell A Hall, Margita Mirceta Zakarija, Irena Urem

IFLA Journal, 49–1, 74-86

Résumé:

Cette étude décrit et compare les exigences minimales d'enseignement pour les programmes de bibliothéconomie proposés en Croatie et aux Etats-Unis. L'article vient compléter des recherches précédentes en enseignement comparatif et bibliothéconomie comparative. Les résultats de l'étude montrent des différences et des similarités notables entre les deux pays. Le parcours pédagogique de bibliothéconomie en Croatie est plus structuré, nécessitant un Master en plus d'un Bachelor, ainsi qu'un diplôme de troisième cycle. Les États-Unis proposent généralement des programmes de diplômes d'études supérieures uniquement sur le terrain. Les programmes de bibliothéconomie dans les deux pays sont généralement flexibles et hautement personnalisables. Les deux pays exigent plusieurs formations fondamentales en bibliothéconomie, cependant les programmes croates accordent plus d'importance à des programmes portant sur la technologie et la gestion des collections. Par contraste, les programmes de bibliothéconomie aux États-Unis exigent plus de formations en gestion et proposent aux étudiants une flexibilité croissante en termes de choix des cours. Cet article peut aider les professeurs en bibliothéconomie à évaluer leurs programmes afin de tenir compte des besoins professionnels actuels et futurs.

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

[Échange et développement des connaissances dans une communauté hybride – une approche basée sur le capital social: l'exemple de la Lettonie]

Guido Sechi, Jurgis Skilters, Marta Selecka, Liva Brice, Krista Leskevica

IFLA Journal, 49–1, 87-98

Résumé:
Cet article examine les modes d'échange de connaissances dans des communautés hybrides où les relations de communication virtuelles et face à face sont complémentaires. La notion de capital social sert de cadre à cette étude. La part du capital social et celle des facteurs de motivation pour favoriser l'échange de différentes formes de connaissances sont examinées au niveau individuel. Le modèle théorique suggéré est testé au moyen d'une modélisation par équation structurelle, et l'analyse porte sur un échantillon de plus de 250 individus appartenant à la communauté d'utilisateurs de la Bibliothèque nationale de Lettonie. Les résultats confirment la plupart des hypothèses théoriques, mais avec quelques résultats inattendus – par exemple le rôle important des facteurs de motivation pour stimuler l'échange de formes complexes de connaissances – mettant en évidence la nature spécifique des communautés hybrides.

Knowledge management, organizational culture and job performance in Nigerian university libraries

[Gestion des connaissances, culture organisationnelle et performance au travail dans les bibliothèques universitaires nigérianes]

Cyprian Ifeanyi Ugwu, Anthonia Ejikeme

IFLA Journal, 49–1, 99-118

Résumé:
Cette étude avait pour but d'examiner l'effet médiateur de la culture organisationnelle sur la relation entre les pratiques de gestion des connaissances et la performance au travail des bibliothécaires universitaires au Nigeria. Elle a utilisé une méthodologie de recherche quantitative. Cinq hypothèses au total ont été soumises à des tests, et un modèle conceptuel a été conçu pour tester l'importance de ces hypothèses avec un seuil de signification de .05. 230 bibliothécaires universitaires ont accepté de répondre au questionnaire utilisé. Les données collectées ont été analysées avec SPSS. Les résultats de l'étude révèlent que la gestion des connaissances et la culture organisationnelle contribuent de façon positive et significative à la performance au travail. Les résultats de l'étude fournissent également des preuves convaincantes confirmant l'impact de la culture organisationnelle sur la relation entre la gestion des connaissances et la performance au travail des bibliothécaires universitaires au Nigeria.

Academic libraries and the need for continuing professional development in Botswana

[Les bibliothèques universitaires et la nécessité de poursuivre le développement professionnel au Botswana]

Olugbade Oladokun, Neo Patricia Mooko

IFLA Journal, 49–1, 117-131

Résumé:
On attend des bibliothécaires universitaires qu'ils aient les compétences requises pour exécuter leurs tâches et proposer rapidement des services de qualité aux utilisateurs. Cette étude a pour but de déterminer dans quelle mesure les bibliothécaires universitaires comprennent l'évolution de leur profession et quels sont les besoins en matière de formation professionnelle continue. L'article s'intéresse à la façon dont les bibliothécaires perçoivent la qualité de la formation à la bibliothéconomie au Botswana et tente de déterminer dans quelle mesure les bibliothécaires universitaires exercent différentes fonctions bibliothécaires et professionnelles. Le modèle de recherche adopté est une approche positiviste. En utilisant la méthode du recensement, des données quantitatives ont été collectées auprès de bibliothécaires en activité, et des données qualitatives ont été obtenues auprès de cinq directeurs de bibliothèques. L'étude constate que les fonctions des bibliothécaires ont considérablement évolué au cours des années, dans la mesure où ils doivent aujourd'hui travailler plus, acquérir plus de compétences et effectuer de nouvelles tâches. L'absence d'une stratégie adaptée en matière de formation professionnelle continue entraîne des lacunes quand il s'agit d'effectuer certaines tâches informatiques et d'autres tâches importantes. Des recommandations sont faites à ce sujet.

Community-driven care of Lanna palm-leaf manuscripts

[Prise en charge par les communautés des manuscrits sur feuilles de latanier de Lanna]

Piyapat Jarusawat Jarusawat, Andrew Cox

IFLA Journal, 49–1, 132-142

Résumé:
Les manuscrits sur feuilles de latanier (sorte de palmier) constituent une part importante du patrimoine de la culture Lanna, dans le nord de la

Thaïlande. Cet article s'intéresse aux pratiques et comportements à l'égard de la gestion des manuscrits sur feuilles de latanier dans trois communautés du nord de la Thaïlande, afin de faire comprendre à ces communautés qu'il est nécessaire d'assurer la pérennité de ces manuscrits. L'étude s'est basée sur des entretiens qui ont fait ensuite l'objet d'une analyse thématique. Elle a permis de constater que les croyances bouddhistes relatives à l'accumulation de mérites et la valeur culturelle des manuscrits sur feuilles de latanier sont fondamentales pour inciter les communautés à participer. Le leadership joue aussi un rôle important, bien que les modèles de leadership diffèrent dans chaque cas. Des organisations externes, notamment des universités, ont joué un rôle essentiel pour cataloguer, conserver et utiliser les manuscrits sur feuilles de latanier. La numérisation, bien qu'elle ait une valeur essentielle pour des organisations externes, ne favorise pas vraiment l'accès des communautés. En tenant compte des enjeux et des défis dans les trois villages, un modèle de prise en charge par les communautés des manuscrits sur feuilles de latanier est proposé.

Preservation and conservation of indigenous manuscripts

[Préservation et conservation des manuscrits indigènes]

Sunil Tyagi

IFLA Journal, 49–1, 143-156

Résumé:

Cette étude vise à examiner l'état de préservation et de conservation du patrimoine constitué par les manuscrits indigènes à la Bibliothèque centrale de l'Institut Jain Vishva Bharati (ayant le statut d'université) au Rajasthan en Inde, manuscrits inconnus du monde savant. Ces manuscrits ont fait l'objet d'un examen pour déterminer leur état physique. Des entretiens structurés ont été menés avec neuf membres du personnel de la section des manuscrits afin d'obtenir des informations concernant les collections de manuscrits et les techniques de préservation et de conservation actuellement utilisées. Les résultats révèlent que globalement, les techniques utilisées par la bibliothèque sont satisfaisantes au regard des procédures opérationnelles standards de la Mission nationale pour les manuscrits. L'étude a également permis de comprendre la nature des collections de manuscrits et les techniques de préservation et de conservation appliquées à leur égard.

Data science education programmes in Middle Eastern institutions: A survey study

[Programmes de formation à la science des données dans les établissements du Moyen-Orient: une étude par sondage]

Mahmoud Sherif Zakaria

IFLA Journal, 49–1, 157-179

Résumé:

Pour réagir aux tendances actuelles de gestion des données dans le monde universitaire, divers instituts de recherche et organismes commerciaux à travers le monde mettent en place de nouveaux programmes afin de combler les lacunes en matière d'effectifs dans des disciplines spécifiques, y compris conservation des données, Big data, gestion des données, science des données et analyse des données. Par conséquent, la présente étude s'est donné pour but de montrer la situation réelle des formations à la science des données au Moyen-Orient et de déterminer les possibilités et défis pour enseigner cette matière dans cette région du monde. Au moment de l'étude, 13 pays du Moyen-Orient proposaient 48 programmes de formation à la science des données. Les résultats révèlent que ces programmes de formation utilisaient largement les termes « données » et « analytique » dans leurs noms. En ce qui concerne les affiliations universitaires des programmes de science des données, l'étude a constaté qu'ils étaient proposés dans toutes sortes d'établissements, en particulier en science informatique, technologies de l'information et gestion. En outre, l'étude a montré que la science informatique domine ces programmes. Les programmes de science des données se recoupent beaucoup avec d'autres programmes, plus spécialement statistiques et science informatique, en raison de la nature interdisciplinaire de cette discipline. Les écoles de formation à la science des données au Moyen-Orient diffèrent par leur appellation et la description de leurs programmes, les cours proposés ainsi que la structure de la formation et ses objectifs. Plus largement, cette étude peut être utile à ceux qui souhaitent mettre en place un programme de science des données ou renforcer leurs programmes d'études dans ce cadre, aussi bien au niveau premier cycle qu'au niveau doctorat.

Examining the status of prison libraries around the world: A literature review

[Étude de la situation des bibliothèques dans les prisons à travers le monde: un examen de la littérature]

Syed Tauseef Hussain, Hina Batool, Ata ur Rehman, Syeda Kiran Zahra, Khalid Mahmood

IFLA Journal, 49–1, 180-200
Résumé:

Cette étude a pour but d'examiner la littérature publiée et de mettre en évidence la situation des bibliothèques en milieu carcéral à travers le monde. Elle vise à adopter une approche globale tout en examinant la littérature, afin d'enquêter sur la situation actuelle de façon géographique. Elle s'intéresse aux documents portant sur les bibliothèques dans les prisons et publiés dans des revues bibliothécaires et de bibliothéconomie aussi bien locales qu'internationales. Les chercheurs ont aussi consulté d'autres sources, notamment des livres, thèses, dissertations, rapports de conférence, sites de bibliothèques, organisations individuelles et professionnelles, y compris l'American Library Association, l'Association des bibliothèques universitaires et de recherche et l'IFLA. Les bases de données utilisées incluent des résumés d'articles de bibliothéconomie, Emerald, JSTOR, Google Scholar et ResearchGate. Les mots-clés utilisés pour la recherche peuvent être catégorisés comme « bibliothèques dans les prisons », « bibliothèques dans les pénitenciers », « bibliothèques dans les établissements pénitentiaires » et « centres de réhabilitation ». Globalement, les constatations suggèrent que la situation des bibliothèques dans les prisons aux États-Unis, au Royaume-Uni, en Europe et en Asie (uniquement dans les zones urbaines) est bien meilleure comparée à celle dans d'autres régions du monde. Cette situation est due à la disponibilité de ressources, l'accès à Internet, la technologie, l'automatisation des catalogues, la coopération avec d'autres bibliothèques telles que des bibliothèques publiques et des budgets stables permettant de bien gérer les affaires bibliothécaires. Le manque de personnel professionnel, l'absence d'espaces bibliothécaires, des collections limitées, des problèmes de censure, une mauvaise situation budgétaire, l'absence d'associations bibliothécaires dans les pays en développement et un manque de coopération entre les bibliothèques des prisons et les bibliothèques publiques sont les principales causes de la situation actuelle des bibliothèques dans les centres pénitentiaires. Cette étude est unique dans la mesure où elle met en évidence la nature des bibliothèques en milieu carcéral à travers le monde avec une optique large, axée sur les normes, les services et les difficultés, ainsi que les recommandations faites par les chercheurs.

A systematic review of crisis management in libraries with emphasis on crisis preparedness

[Un examen systématique de la gestion de crise dans les bibliothèques, insistant sur la préparation aux crises]

Somaye Akhshik, Reza Rajabali Beglou

IFLA Journal, 49–1, 201-215
Résumé:

Se préparer à affronter des problèmes est critique pour la gestion de crise dans toutes les organisations, y compris les bibliothèques. Les bibliothèques doivent prendre des décisions à propos des situations de crise, ce qui nécessite une planification et une préparation à de telles crises. Cette étude systématique a pour but d'analyser et d'identifier les principaux thèmes pouvant aider les bibliothèques dans leur prise de décision en cas de crise. Au total, 2900 études menées de 1985 à 2020 ont été identifiées. En appliquant des critères d'inclusion et d'exclusion, 44 études ont été retenues dans la procédure finale d'examen. Les résultats de cette étude indiquent que les thèmes les plus fréquents et les facteurs les plus importants en matière de gestion de crise sont des instructions pour se préparer à une crise, des programmes de formation et une évaluation du niveau de préparation. De plus, la majorité des études étaient fondamentalement axées sur des crises économiques et financières plutôt que sur des crises naturelles, sociales ou sanitaires. En outre, entre 2008 et 2017, il y a eu une augmentation significative du nombre d'articles publiés traitant principalement des bibliothèques universitaires et bibliothèques de recherche. Récemment, il y a eu aussi une augmentation des articles consacrés à la préparation aux crises et à leur gestion dans le cadre de ces recherches.

A review of international education literature: Interdisciplinary and discovery challenges

[Examen des documents consacrés à l'éducation internationale: défis interdisciplinaires et problèmes pour les trouver]

Shanna Saubert, Liz Cooper

IFLA Journal, 49–1, 216-229
Résumé:
Trouver des documents appropriés consacrés à l'éducation internationale peut être difficile en raison de la nature de ce domaine et de la façon dont les travaux érudits sont indexés. Cet article présente un examen des documents publiés à ce propos, afin d'identifier les thèmes essentiels et les modes de publication, ainsi que les lacunes potentielles et les inconséquences dans le discours érudit actuel. À l'aide des mots-clés « éducation internationale » et « éducation mondiale », les analyses se concentrent sur les dossiers trouvés sur le Web of Science. Parmi les 1492 articles de revues à comité de lecture (publiés de 1991 à 2017), les analyses révèlent que 705 articles seulement concernent l'éducation internationale. Des analyses complémentaires des données bibliométriques montrent une augmentation significative des publications portant sur l'éducation internationale au cours des deux dernières décennies, une évolution des tendances sur le plan des intérêts thématiques et des méthodes, et des publications disparates concernant les contextes nationaux et les langues en-dehors de l'hémisphère nord/du discours à dominance anglophone. L'article conclut avec des recommandations pour améliorer l'accès, établir de meilleurs rapports avec divers domaines de recherche sur l'éducation internationale et étendre le discours savant pour une représentativité plus diversifiée.

Strategies for checking misinformation: An approach from the Global South

(Strategien zur Überprüfung von Fehlinformationen: Ein Ansatz aus dem globalen Süden)

Anup Kumar Das, Gayatri Dwivedi, manorama Tripathi

IFLA Journal, 49–1, 3-17
Zusammenfassung:
Die Manipulation von Informationen im Sinne der eigenen Interessen ist eine wachsende Gefahr. Sie enthält Elemente von Desinformation, Fehlinformation und Fake News und ist nicht authentisch. Eine solche Manipulation und Verzerrung von Tatsachen kann schwerwiegende Folgen für eine Gemeinschaft haben, insbesondere in einem so vielfältigen Land wie Indien. Hier sind strenge Maßnahmen und Sensibilisierung gefordert, um diese Ausbreitung einzudämmen. Die Technologie ist ein weiterer Katalysator für diese Verbreitung. Institutionen, Bibliotheken, Regierungen und Medien denken über wirksame Mittel nach, um Fake News von echten Nachrichten zu unterscheiden. Dieser Artikel beschreibt einige dieser Initiativen. Er erörtert die Regeln der indischen Regierung zur Informationstechnologie (Vermittlerrichtlinien und Ethikkodex für digitale Medien) von 2021, um die Verbreitung solcher falschen Mitteilungen einzudämmen, deren Elemente auch in anderen Regionen übernommen werden können. Er wirft außerdem ein Schlaglicht auf das Thema und unterstreicht die Notwendigkeit von Medien- und Informationskompetenz für alle, um bei der Aufnahme, dem Konsum und der Verarbeitung von Informationen kritischer zu sein, bevor man auf sie reagiert. Die in Indien ergriffenen Initiativen zur Überprüfung der Faktenlage und die Vorschriften zur Informationstechnologie können auch in anderen Ländern übernommen werden.

An evaluation of institutional repository development in African universities

(Eine Bewertung der Entwicklung institutioneller Repositorien an afrikanischen Universitäten)

Ebikabowei E. Baro, Anthonia U. Nwabueze-Echedom

IFLA Journal, 49–1, 18-38
Zusammenfassung:
Ziel dieser Studie ist es, die Entwicklung von institutionellen Repositorien in Universitätsbibliotheken in Afrika zu bewerten. Mit Hilfe eines Online-Fragebogens und einer Untersuchung der Website eines institutionellen Repositoriums wurden Daten von 134 Universitätsbibliotheken in englischsprachigen Ländern in Afrika gesammelt. Die Studie stellt fest, dass es in den englischsprachigen Ländern Afrikas eine steigende Tendenz zur Entwicklung institutioneller Repositorien gibt. Die meisten institutionellen Repositorien enthalten eine große Anzahl von Dissertationen und Diplomarbeiten, gefolgt von Zeitschriftenartikeln sowie Konferenz- und Workshop-Beiträgen. Die Studie stellt zahlreiche Herausforderungen fest, wie unzureichende Einrichtungen, instabile Internetverbindungen, fehlende finanzielle Mittel, eine unregelmäßige Stromversorgung, das Sammeln von Material für institutionelle Repositorien, ein Mangel an qualifiziertem Personal im Bereich der Informations- und Kommunikationstechnologie, Urheberrechtsfragen und das Fehlen von Richtlinien für institutionelle Repositorien. Die Ergebnisse der Studie liefern wichtige Daten und Einblicke in die Entwicklung von institutionellen Repositorien in

Universitätsbibliotheken im Kontext von Entwicklungsländern und bieten Anregungen für Universitätsbibliothekare und Managementteams.

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

(Sammlungen, Pflege und das Kollektiv: Experimente zur gemeinsamen Feldforschung im Bereich Bibliothekswesen für Regionalstudien)

Ellen Ambrosone, Laura Ring, Mara Thacker

IFLA Journal, 49–1, 39-51

Zusammenfassung:

Während die Wissenschaft in der Bibliothekswissenschaft das Verständnis für die Zusammenarbeit und ihr Potenzial zur Umgestaltung der kollektiven Sammlung immer weiter ausbaut, haben die bibliothekarischen Beschaffungsreisen in diesem Zusammenhang kaum eine Rolle gespielt. Anfang 2020 reisten drei in den USA ansässige Bibliothekare für Südasienstudien gemeinsam nach Indien und verzichteten auf Einzelreisen zugunsten eines Modells der gemeinschaftlichen Feldforschung. Ausgehend von dieser Reise als Fallstudie untersuchen die Autoren anhand interdisziplinärer Literatur, wie sich überschneidende Identitäten und der verkörperte Charakter der Feldarbeit die Ergebnisse der kollektiven Sammlung beeinflussen. Sie denken darüber nach, wie die Pflege vor Ort mit den Bemühungen um den Aufbau ethischerer Sammlungen in Einklang gebracht werden kann. Abschließend gehen die Autoren auf die Möglichkeiten einer Verlagerung der Zusammenarbeit über die bloße Koordinierung hinaus ein und machen Vorschläge, wie eine relationale Perspektive in ihrer Arbeit gefördert werden könnte. An der Schnittstelle zwischen Theorie und Praxis hilft dieser Artikel den Lesern, die ganzheitliche Arbeit hinter der Bibliotheksarbeit für Gebietsstudien zu verstehen, und bietet eine Vision für eine verbesserte Praxis in diesem Bereich.

Croatian adolescents' credibility judgments in making everyday life decisions

(Glaubwürdigkeitsbewertungen kroatischer Jugendlicher bei Entscheidungen des täglichen Lebens)

Alica Kolaric

IFLA Journal, 49–1, 52-60

Zusammenfassung:

Ziel dieser Studie war es, zu untersuchen, wie Gymnasiasten die Glaubwürdigkeit von Informationen beurteilen, die sie als Entscheidungshilfe für ihren Alltag erhalten haben. Mit Hilfe von halbstrukturierten Einzelinterviews sollte herausgefunden werden, aus welchen Gründen sie von der Qualität, Genauigkeit und Nützlichkeit der Informationen überzeugt sind. Die Ergebnisse zeigen, dass die Schüler bevorzugt auf interpersonelle Informationsquellen zurückgreifen. Die erhaltenen Informationen wurden als glaubwürdig wahrgenommen, wenn die Quelle mit Attributen versehen war, die Kompetenz und Vertrauenswürdigkeit ausdrücken (wie Fachwissen, Kenntnisse und Präzision). Weitere wichtige Indikatoren für die Glaubwürdigkeit von Informationen bei zwischenmenschlichen Informationsquellen waren die Merkmale, die persönliches Vertrauen ausdrücken, und die Qualität der Beziehung zur Quelle. Die Informationen in den sozialen Medien wurden anhand von sozial erzeugten Hinweisen bewertet, die das Ansehen und die Beliebtheit in der Gemeinschaft der Nutzer zum Ausdruck brachten. Schließlich wurde die Glaubwürdigkeit überprüft, indem die Konsistenz der Informationen aus verschiedenen Quellen kontrolliert wurde.

Open government data initiatives in the Maghreb countries: An empirical analysis

(Initiativen für offene Behördendaten in den Maghreb-Ländern: Eine empirische Analyse)

Elsayed Elsawy, Ahmed Shehata

IFLA Journal, 49–1, 61-73

Zusammenfassung:

Dieser Artikel untersucht die Praktiken, die bei der Bewahrung und gemeinsamen Nutzung von Daten in offenen Datenportalen in den Maghreb-Ländern angewandt werden, und bewertet, ob ihre Struktur und Organisation mit den Zielen dieser Portale vereinbar sind. Eine Reihe von Merkmalen, die in offenen Datenportalen vorhanden sein müssen, wurde entwickelt und dann als Rahmen für die Analyse der Struktur und Organisation von offenen Datenportalen in den Maghreb-Ländern verwendet. In der Studie wurde ein inhaltsanalytischer Ansatz gewählt, um den Inhalt von fünf offenen Datenportalen (in Libyen, Tunesien, Algerien, Marokko und Mauretanien) zu analysieren. Die Ergebnisse zeigen, dass offene Datenportale in den Maghreb-Ländern Daten von

verschiedenen Ministerien, lokalen Gemeinschaften und Organisationen bereitstellen. Darüber hinaus deuten die Ergebnisse darauf hin, dass es den Portalen für offene Behördendaten in Algerien und Marokko an der Übersetzung der Inhalte ins Englische mangelt, was Folgen für nicht-arabischsprachige Personen hat. Außerdem befindet sich die Einführung einer Politik der offenen Daten noch im Anfangsstadium. Diese Studie ist deshalb so bedeutsam, weil sie die erste Studie ist, die sich auf die Länder des arabischen Maghreb und das Ausmaß ihrer Fortschritte bei der Einführung und Bereitstellung von offenen Daten konzentriert.

Comparison of library studies programs in Croatia and the USA

(Vergleich von Bibliotheksstudiengängen in Kroatien und den USA)

Angela R Davis, Stephanie Diaz Diaz, Russell A Hall, Margita Mirceta Zakarija, Irena Urem

IFLA Journal, 49–1, 74-86
Zusammenfassung:

Diese Studie beschreibt und vergleicht die Mindestanforderungen an die Ausbildung in Bibliotheks- und Informationswissenschaften in Kroatien und den USA. Der Artikel ergänzt die bisherige Forschung im Bereich der vergleichenden Bildung und des vergleichenden Bibliothekswesens. Die Ergebnisse zeigen bemerkenswerte Unterschiede und Gemeinsamkeiten zwischen den beiden Ländern. Der Ausbildungsweg in den Bibliotheks- und Informationswissenschaften in Kroatien ist stärker strukturiert und erfordert neben einem Master auch einen Bachelor-Abschluss sowie eine postgraduale Zulassung. In den USA werden in der Regel nur Hochschulstudiengänge auf diesem Gebiet angeboten. Die Studiengänge für Bibliotheks- und Informationswissenschaft in beiden Ländern sind im Allgemeinen flexibel und in hohem Maße anpassbar. In beiden Ländern werden mehrere Grundkurse für das Bibliothekswesen verlangt, wobei die kroatischen Studiengänge einen größeren Schwerpunkt auf Technologie und Sammlungsmanagement legen. Im Gegensatz dazu werden in den USA in den bibliotheks- und informationswissenschaftlichen Studiengängen mehr Management-Kurse verlangt, und die Studierenden haben mehr Flexibilität bei der Kurswahl. Dieser Artikel kann Ausbildern im Bereich Bibliothekswissenschaft dabei helfen, ihre Programme zu evaluieren, um aktuelle und zukünftige berufliche Anforderungen zu erfüllen.

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

(Wissensaustausch und Wachstum in einer hybriden Gemeinschaft - ein sozialkapitalbasierter Ansatz: Erkenntnisse aus Lettland)

Guido Sechi, Jurgis Skilters, Marta Selecka, Liva Brice, Krista Leskevica

IFLA Journal, 49–1, 87-98
Zusammenfassung:

In diesem Artikel werden die Muster des Wissensaustauschs in hybriden Gemeinschaften untersucht, in denen sich virtuelle und persönliche Kommunikationsverbindungen ergänzen. Der Rahmen der Studie basiert auf der Theorie des Sozialkapitals. Die Rolle der Dimensionen des Sozialkapitals und der Motivationsfaktoren bei der Förderung des Austauschs verschiedener Formen von Wissen wird auf individueller Ebene untersucht. Das vorgeschlagene theoretische Modell wird durch Strukturgleichungsmodellierung getestet, und die Analyse wird an einer Stichprobe von mehr als 250 Personen durchgeführt, die zur Gemeinschaft der Nutzer der lettischen Nationalbibliothek gehören. Die Ergebnisse bestätigen die meisten der theoretischen Hypothesen, zeigen aber auch einige unerwartete Ergebnisse - wie z. B. die wichtige Rolle von Motivationsfaktoren bei der Förderung des Austauschs komplexer Wissensformen - und verdeutlichen damit die Besonderheit hybrider Gemeinschaften.

Knowledge management, organizational culture and job performance in Nigerian university libraries

(Wissensmanagement, Organisationskultur und Arbeitsleistung in nigerianischen Universitätsbibliotheken)

Cyprian Ifeanyi Ugwu, Anthonia Ejikeme

IFLA Journal, 49–1, 99-116
Zusammenfassung:

Das Ziel dieser Studie war es, den vermittelnden Effekt der Organisationskultur auf die Beziehung zwischen Wissensmanagementpraktiken und der Arbeitsleistung von wissenschaftlichen Bibliothekaren in Universitätsbibliotheken in Nigeria zu untersuchen. Für die Studie wurde eine quantitative Forschungsmethodik zugrunde gelegt. Insgesamt wurden fünf Hypothesen zur Prüfung vorgeschlagen, und es wurde ein konzeptionelles Modell entwickelt, um diese Hypothesen auf Signifikanz auf dem Niveau von 0,05 zu testen. Es wurde eine Fragebogenerhebung durchgeführt, und insgesamt 230 wissenschaftliche Bibliothekare erklärten sich bereit, an der Studie teilzunehmen. Die erhobenen Daten wurden mit Hilfe von SPSS ausgewertet. Die Ergebnisse der Studie zeigen, dass Wissensmanagement und Organisationskultur einen positiven und signifikanten Beitrag zur Arbeitsleistung leisten. Außerdem liefern die Ergebnisse der Studie überzeugende Beweise für den Einfluss der Organisationskultur auf die Beziehung zwischen Wissensmanagement und der Arbeitsleistung von wissenschaftlichen Bibliothekaren in Universitätsbibliotheken in Nigeria.

Academic libraries and the need for continuing professional development in Botswana

(Wissenschaftliche Bibliotheken und der Bedarf an beruflicher Weiterbildung in Botswana)

Olugbade Oladokun, Neo Patricia Mooko

IFLA Journal, 49–1, 117-131

Zusammenfassung:

Von einem wissenschaftlichen Bibliothekar wird erwartet, dass er die von ihm übernommenen Aufgaben gut beherrscht und den Benutzern zeitnah qualitativ hochwertige Dienstleistungen zur Verfügung stellt. Ziel dieser Studie war es, das Verständnis der wissenschaftlichen Bibliothekare für die Veränderungen in ihrem Beruf und die Notwendigkeit einer kontinuierlichen beruflichen Weiterbildung zu ermitteln, die Wahrnehmung der Qualität der bibliothekarischen und informationswissenschaftlichen Ausbildung in Botswana durch die Bibliothekare zu untersuchen und herauszufinden, inwieweit die wissenschaftlichen Bibliothekare verschiedene bibliothekarische und berufliche Funktionen erfüllen. Das gewählte Forschungsparadigma war ein positivistischer Ansatz. Mit Hilfe der Erhebungsmethode wurden quantitative Daten von praktizierenden Bibliothekaren und qualitative Daten von fünf Bibliotheksleitern gesammelt. In der Studie wurde festgestellt, dass sich die Arbeit der Bibliothekare im Laufe der Jahre erheblich verändert hat, da sie heute mehr arbeiten, mehr Fähigkeiten erlernen und neue Aufgaben erfüllen müssen. Da es keine geeignete Strategie für die berufliche Weiterbildung gab, fehlte es an ausreichenden Kenntnissen für die Durchführung der Informationstechnologie und anderer wichtiger Aufgaben. Entsprechende Empfehlungen werden ausgesprochen.

Community-driven care of Lanna palm-leaf manuscripts

(Pflege von Lanna-Palmblattmanuskripten durch die Gemeinschaft)

Piyapat Jarusawat Jarusawat, Andrew Cox

IFLA Journal, 49–1, 132-142

Zusammenfassung:

Palmblattmanuskripte sind ein wichtiger Teil des Erbes der Lanna-Kultur im Norden Thailands. Ziel dieses Artikels ist es, die Praktiken und Einstellungen zur Verwaltung von Palmblattmanuskripten in drei Gemeinden in Nordthailand zu untersuchen, um ein gemeinschaftsbezogenes Verständnis für die nachhaltige Pflege von Palmblattmanuskripten zu entwickeln. Die Studie basierte auf Interviews, die thematisch ausgewertet wurden. Es wurde festgestellt, dass der buddhistische Glaube an die Erlangung von Verdiensten und der kulturelle Wert von Palmblattmanuskripten die Grundlage für das Engagement der Gemeinschaft bilden. Auch die Führung spielte eine wichtige Rolle, wenngleich die Führungsmodelle von Fall zu Fall unterschiedlich waren. Externe Organisationen wie Universitäten spielen eine Schlüsselrolle bei der Katalogisierung, Bewahrung und Nutzung von Palmblattmanuskripten. Die Digitalisierung ist zwar von zentraler Bedeutung für den Nutzen für externe Organisationen, fördert aber nicht wirklich den Zugang der Gemeinschaft. Ausgehend von den Triebkräften und Herausforderungen in den drei Dörfern wird ein Modell für die gemeinschaftsgetragene Pflege von Palmblattmanuskripten vorgeschlagen.

Preservation and conservation of indigenous manuscripts

(Bewahrung und Erhaltung einheimischer Handschriften)

Sunil Tyagi

IFLA Journal, 49–1, 143-156

Zusammenfassung:

Diese Studie ist ein Versuch, die Erhaltung und den Zustand des Erbes einheimischer Manuskripte in der Zentralbibliothek des Jain Vishva Bharati Institute (Deemed University), Rajasthan, Indien, zu untersuchen, die der wissenschaftlichen Welt unbekannt sind. Es wurde eine Untersuchung der Handschriften durchgeführt, um ihren physischen Zustand zu ermitteln. Mit Hilfe eines strukturierten Interviews mit neun Mitarbeitern der Handschriftenabteilung wurden Informationen über die Handschriftensammlungen und die derzeit angewandten Konservierungs- und Erhaltungstechniken eingeholt. Die Ergebnisse zeigen, dass die in der Bibliothek angewandten Konservierungs- und Erhaltungstechniken gemäß den Standardarbeitsanweisungen der Nationalen Mission für Handschriften insgesamt zufriedenstellend sind. Die Studie gibt auch Aufschluss über die Beschaffenheit der Handschriftensammlungen und die für die Handschriften angewandten Konservierungs- und Schutztechniken.

Data science education programmes in Middle Eastern institutions: A survey study

(Bildungsprogramme für Datenwissenschaft in Einrichtungen im Nahen Osten: Eine Übersichtsstudie)

Mahmoud Sherif Zakaria

IFLA Journal, 49–1, 157-179

Zusammenfassung:

Als Reaktion auf die aktuellen Trends im Umgang mit Daten im akademischen Bereich entwickeln verschiedene Forschungseinrichtungen und kommerzielle Unternehmen weltweit neue Programme, um die Lücken in der Nachfrage nach Arbeitskräften in bestimmten Disziplinen zu schließen, darunter Datenpflege, Big Data, Datenmanagement, Datenwissenschaft und Datenanalyse. Ziel der vorliegenden Studie war es daher, die Realität der Ausbildung im Bereich Datenwissenschaften im Nahen Osten aufzuzeigen und die Chancen und Herausforderungen dieser Ausbildung in der Region zu ermitteln. Dreizehn Länder im Nahen Osten boten zum Zeitpunkt der Studie 48 Studiengänge für Datenwissenschaft an. Die Ergebnisse zeigen, dass diese Studiengänge für Datenwissenschaft auffällig oft die Begriffe „Daten" und „Analytik" in ihren Namen verwenden. Hinsichtlich der akademischen Zugehörigkeit der Studiengänge für Datenwissenschaft ergab die Studie, dass sie an einer Vielzahl von Bildungsinstituten angeboten werden, insbesondere in den Bereichen Informatik, Informationstechnologie und Wirtschaft. Darüber hinaus ergab die Studie, dass die Informatik der vorherrschende Trend unter den Studiengängen ist. Aufgrund des interdisziplinären Charakters der Datenwissenschaft überschneiden sich die Studiengänge stark mit anderen Studiengängen, insbesondere mit Statistik und Informatik. Die Studiengänge für Datenwissenschaft im Nahen Osten unterscheiden sich in Bezug auf ihre Titel Beschreibungen des Studiengangs, Kurskataloge, Lehrplanstrukturen und Kursziele. Im Großen und Ganzen kann diese Studie für diejenigen nützlich sein, die einen Studiengang für Datenwissenschaft einrichten oder Lehrpläne im Bereich Datenwissenschaft sowohl auf der Undergraduate- als auch auf der Postgraduate-Ebene stärken wollen.

Examining the status of prison libraries around the world: A literature review

(Untersuchung des Status von Gefängnisbibliotheken in aller Welt: Eine Literaturanalyse)

Syed Tauseef Hussain, Hina Batool, Ata ur Rehman, Syeda Kiran Zahra, Khalid Mahmood

IFLA Journal, 49–1, 180-200

Zusammenfassung:

Ziel dieser Studie ist es, die veröffentlichte Literatur zu sichten und die Situation von Gefängnisbibliotheken auf der ganzen Welt zu beleuchten. Die Studie bemüht sich um einen umfassenden Ansatz bei der Durchsicht der Literatur, um so einen geografischen Überblick über den derzeitigen Stand zu erhalten. Die verfügbare Literatur über Gefängnisbibliotheken in lokalen und internationalen bibliotheks- und informationswissenschaftlichen Fachzeitschriften wurde untersucht. Die Forscher konsultierten auch andere Quellen wie Bücher, Diplomarbeiten, Dissertationen, Konferenzberichte, Bibliothekswebsites, Einzelpersonen und Berufsorganisationen, darunter die American Library Association, die Association of College and Research Libraries und die IFLA. Zu den verwendeten Datenbanken gehören Library and Information Science Abstracts (LISA), Library, Information Science and Technology Abstracts, Emerald, JSTOR, Google Scholar und ResearchGate. Die für die Suche verwendeten Stichwörter lassen sich in die Kategorien „Gefängnisbibliotheken" (prison libraries, jail libraries), „Bibliotheken von Justizvollzugsanstalten" und „Rehabilitationszentren" einteilen. Insgesamt deuten die Ergebnisse darauf hin, dass die Situation der Gefängnisbibliotheken in den USA, im Vereinigten Königreich, in Europa und in Asien (nur in städtischen Gebieten) im Vergleich zu den anderen Regionen der Welt wesentlich besser ist. Diese Situation ist auf die Verfügbarkeit von Ressourcen, den Zugang zum Internet, Technologie, automatisierte Kataloge, die Zusammenarbeit mit anderen Bibliotheken, wie z. B. öffentlichen Bibliotheken, und regelmäßige Budgets für den reibungslosen Ablauf

der Bibliotheksarbeit zurückzuführen. Der Mangel an professionellem Personal, das Fehlen von Bibliotheksräumen, begrenzte Sammlungen, Zensurprobleme, eine schlechte Haushaltslage, das Fehlen von Bibliotheksverbänden in Entwicklungsländern und die mangelnde Zusammenarbeit zwischen Gefängnisbibliotheken und öffentlichen Bibliotheken sind die Hauptursachen für die derzeitige Situation der Gefängnisbibliotheken. Die Studie ist insofern einzigartig, als sie die Situation der Gefängnisbibliotheken weltweit aus einem breiten Blickwinkel beleuchtet und sich auf Standards, Dienstleistungen und Schwierigkeiten sowie auf die Empfehlungen der Forscher konzentriert.

A systematic review of crisis management in libraries with emphasis on crisis preparedness

(Eine systematische Überprüfung des Krisenmanagements in Bibliotheken mit Schwerpunkt auf der Krisenvorsorge)

Somaye Akhshik, Reza Rajabali Beglou

IFLA Journal, 49–1, 201-215

Zusammenfassung:

Krisenvorsorge ist für das Krisenmanagement in allen Organisationen, auch in Bibliotheken, von entscheidender Bedeutung. Bibliotheken müssen in Krisensituationen Entscheidungen treffen, und das erfordert Planung und die Vorbereitung auf Krisen. Ziel dieser systematischen Untersuchung war es, die wichtigsten Aspekte zu analysieren und zu ermitteln, die Bibliotheken bei der Entscheidungsfindung in Krisenzeiten helfen. Insgesamt wurden 2900 Studien aus den Jahren 1985 bis 2020 ermittelt. Nach Anwendung der Einschluss- und Ausschlusskriterien wurden 44 Studien in den endgültigen Review-Prozess einbezogen. Die Ergebnisse der Studie deuten darauf hin, dass die Themen, die im Zusammenhang mit der Krisenbewältigung am häufigsten angesprochen wurden, Unterweisungen zur Vorbereitung, Schulungsprogramme, Bewertung der Vorbereitung und wichtige Faktoren bei der Krisenbewältigung waren. Darüber hinaus konzentrierten sich die meisten Studien in erster Linie auf Wirtschafts- oder Finanzkrisen und weniger auf Natur-, Sozial- oder Gesundheitskrisen. Zwischen 2008 und 2017 gab es einen signifikanten Anstieg der Anzahl veröffentlichter Artikel, die hauptsächlich von wissenschaftlichen und Forschungsbibliotheken stammen. Außerdem sind in letzter Zeit vermehrt Artikel erschienen, die sich mit Krisenvorsorge und -management befassen.

A review of international education literature: Interdisciplinary and discovery challenges

(Ein Überblick über die internationale Bildungsliteratur: Interdisziplinäre Herausforderungen und Herausforderungen bei der Suche)

Shanna Saubert, Liz Cooper

IFLA Journal, 49–1, 216-229

Zusammenfassung:

Das Auffinden relevanter Forschungsarbeiten im Bereich der internationalen Bildung kann sich aufgrund der Art des Fachgebiets und der Art und Weise, wie wissenschaftliche Arbeiten indexiert werden, schwierig gestalten. In diesem Artikel wird ein Überblick über die veröffentlichte internationale Bildungsliteratur gegeben, um wichtige Themen und Publikationsmuster sowie mögliche Lücken und Ungleichheiten im aktuellen wissenschaftlichen Diskurs zu ermitteln. Unter den Stichwörtern „international education" (internationale Bildung) und „global education" (globale Bildung) werden vor allem Einträge aus dem Web of Science ausgewertet. Von den 1492 begutachteten Zeitschriftenartikeln (veröffentlicht von 1991 bis 2017) ergaben die Analysen nur 705 Artikel, die für den Bereich der internationalen Bildung relevant sind. Weitere Analysen bibliometrischer Daten zeigen eine deutliche Zunahme internationaler Bildungspublikationen in den letzten zwei Jahrzehnten, sich entwickelnde Trends in Bezug auf thematische Schwerpunkte und Methoden sowie Publikationsunterschiede in Bezug auf nationale Kontexte und Sprachen außerhalb des globalen Nordens/des anglophon dominierten Diskurses. Der Artikel schließt mit Empfehlungen zur Verbesserung der Auffindbarkeit, zur besseren Verknüpfung verschiedener Bereiche der internationalen Bildungsforschung und zur Ausweitung des wissenschaftlichen Diskurses, um eine größere Vielfalt zu erreichen.

Strategies for checking misinformation: An approach from the Global South

Стратегии проверки дезинформации: подход Глобального Юга

Anup Kumar Das, Gayatri Dwivedi, manorama Tripathi

Ануп Кумар Дас, Гаятри Двиведи, манорама Трипати

Журнал ИФЛА, 49–1, 3-17

Аннотация:

Манипулирование информацией в угоду чьим-либо корыстным интересам представляет собой растущую опасность. В ней есть элементы дезинформации, искаженной

информации и фальшивых новостей, и в нем отсутсвует подлинность. Такие манипуляции и искажение фактов могут иметь серьезные последствия для общества, особенно в такой многоликой стране, как Индия. Необходимо принимать строгие меры и повышать осведомленность населения с целью остановить распространение подобной информации. Технология еще больше стимулирует подобное распространение. Учреждения, библиотеки, правительства и средства массовой информации - все они обсуждают эффективные способы отличить поддельные новости от подлинных. В этой статье подробно описываются некоторые такие инициативы, а также обсуждаются правила правительства Индии в области информационных технологий (Руководящие принципы посредничества и Кодекс этики цифровых МЕДИА) 2021 года, направленные на пресечение такого лживого распространения, элементы которого могут быть воспроизведены в других регионах. В статье освещается проблема и подчеркивается необходимость повышения медиаграмотности и информационной грамотности для всех, чтобы быть более разборчивыми во время приема, потребления и усвоения информации, прежде чем реагировать на нее. Кроме того, инициативы по проверке фактов и правила в области информационных технологий, принятые и сформулированные в Индии, могут быть в последствии использованы в других странах.

An evaluation of institutional repository development in African universities

Оценка развития институционального репозитория в африканских университетах

Ebikabowei E. Baro, Anthonia U. Nwabueze-Echedom

Эбикабовей Э. Баро, Антония У. Нвабуэзе-Эхедом

Журнал ИФЛА, 49–1, 18-38

Аннотация:

Целью этого исследования является оценка развития институционального репозитория в университетских библиотеках Африки. Для сбора данных из 134 университетских библиотек в англоязычных странах Африки были использованы онлайн-анкета и методы исследования сайта институционального репозитория. Исследование показывает, что в англоязычных странах Африки наблюдается растущая волна развития институциональных репозиторий. Большинство институциональных репозиторий содержат большое количество тезисов и диссертаций, за которыми следуют журнальные статьи и материалы конференций и семинаров. Выявленные проблемы включают неадекватные условия, нестабильное подключение к Интернету, нехватку средств, нерегулярное электроснабжение, сбор материалов для институциональных репозиторий, нехватку квалифицированного персонала в области информационных и коммуникационных технологий, проблемы с авторским правом и отсутствие политики институциональных репозиторий. Результаты исследования предоставляют важные данные и представление о развитии институциональных репозиторий в университетских библиотеках в контексте развивающихся стран, а также содержат предложения для университетских библиотекарей и групп управления.

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

Ellen Ambrosone, Laura Ring, Mara Thacker

Коллекции, забота и коллектив: эксперименты в совместной полевой работе в области библиотековедения

Эллен Амброзоне, Лора Ринг, Мара Такер

Журнал ИФЛА, 49–1, 39-51

Аннотация:

В то время как стипендии в области библиотечного дела продолжают расширять понимание сотрудничества и его потенциала для преобразования коллективной коллекции, поездки библиотекарей с целью аквизиции в целом не обсуждались. В начале 2020 года три американских библиотекаря, специализировавшихся на Южной Азии, отправились в Индию вместе, отказавшись от одиночных поездок в пользу модели совместной работы на местах. Используя эту поездку в качестве тематического исследования, авторы опираются на междисциплинарную литературу с целью проведения исследования о том, как пересекающиеся идентичности и воплощенный характер полевых работ формируют результаты коллективной коллекции.

Они размышляют о том, как первичная забота в полевых условиях может сочетаться с усилиями по созданию более этичных коллекций. Наконец, авторы рассматривают возможности перехода к сотрудничеству, выходящему за рамки простой координации, и высказывают предложения о том, как в их работе можно было бы отстаивать точку зрения взаимоотношений. Находясь на стыке теории и практики, эта статья помогает читателям понять целостную работу, лежащую в основе библиотечного дела в области изучения потребностей регионов, а также предлагает видение авторов на совершенствования практики в этой области.

Croatian adolescents' credibility judgments in making everyday life decisions

Суждения хорватских подростков о достоверности информации при принятии решений в повседневной жизни

Alica Kolaric

Алисия Коларик

Журнал ИФЛА, 49–1, 52-60

Аннотация:

Целью этого исследования было выяснить, как старшеклассники оценивают достоверность информации, получаемой в качестве помощи при принятии повседневных жизненных решений. Были проведены полуструктурированные индивидуальные интервью, чтобы выявить причины, лежащие в основе их доверия качеству, точности и полезности информации. Результаты показывают, что студенты предпочитали обращаться к межличностным источникам информации. Полученная информация воспринималась как заслуживающая доверия в тех случаях, когда источник характеризовался атрибутами, которые выражали компетентность и надежность (такими как опыт, знания и точность). Другими важными показателями достоверности информации в случаях межличностных источников информации были характеристики, которые выражали личное доверие и качество отношений с источником. Информация в социальных сетях оценивалась по социально генерируемым сигналам, которые отражали репутацию и популярность в сообществе пользователей. Наконец, достоверность проверялась путем контроля согласованности информации, поступавшей из нескольких источников.

Open government data initiatives in the Maghreb countries: An empirical analysis

Инициативы в области открытых правительственных данных в странах Магриба: эмпирический анализ

Elsayed Elsawy, Ahmed Shehata

Эльсайед Эль Сави, Ахмед Шехата

Журнал ИФЛА, 49–1, 61-73

Аннотация:

В этой статье исследуется практика сохранения данных, а также обмена ими на порталах открытых данных в странах Магриба, а также дается оценка, соответствуют ли их структура и организация целям этих порталов. Был разработан набор характеристик, которые должны быть доступны на порталах открытых данных, а затем использованы в качестве основы для анализа структуры и организации порталов открытых данных в странах Магриба. В исследовании использовался подход контент-анализа для анализа содержимого пяти порталов открытых данных (в Ливии, Тунисе, Алжире, Марокко и Мавритании). Полученные данные свидетельствуют о том, что порталы открытых данных в странах Магриба предоставляют данные от различных министерств, местных сообществ и организаций. Результаты также указывают на то, что на порталах открытых правительственных данных в Алжире и Марокко отсутствует перевод контента на английский язык, что сказывается на лицах, не говорящих на арабском языке. Более того, принятие политики открытых данных все еще находится на ранних стадиях. Оригинальность данного исследования заключается в том, что оно является первым исследованием, в котором основное внимание уделяется странам Арабского Магриба, включая степень их прогресса в области принятия и обеспечения доступности открытых данных.

Comparison of library studies programs in Croatia and the USA

Сравнение программ библиотечного образования в Хорватии и США

Angela R Davis, Stephanie Diaz Diaz, Russell A Hall, Margita Mirceta Zakarija, Irena Urem

Анджела Р. Дэвис, Стефани Диас Диас, Рассел А. Холл, Маргита Мирсета Закария, Ирена Урем

Журнал ИФЛА, 49–1, 74-86

Аннотация:

В данном исследовании описываются и сравниваются минимальные образовательные требования к программам библиотечного дела и информатики, предлагаемым в Хорватии и США. Статья дополняет предыдущие исследования в области сравнительного образования и сравнительного библиотечного дела. Полученные результаты показывают заметные различия и сходства между двумя странами. Образовательная программа в области библиотековедения и информатики в Хорватии более структурирована и требует получения степени бакалавра в дополнение к степени магистратуры при обязательной последипломной лицензии. США, как правило, предлагают только программы получения степени магистра в этой области. Библиотечные программы и программы информатики в обеих странах, как правило, являются гибкими и легко настраиваемыми. В обеих странах обязательными являются несколько базовых курсов по библиотечному делу, однако в хорватских программах больший акцент делается на технологии и учебные планы по управлению коллекциями. Напротив, программы библиотечного дела и информатики в США делают акцент на курсовых работах по менеджменту и предлагают студентам большую гибкость в плане выбора курса. Данная статья может помочь преподавателям библиотечных школ в оценке программ для удовлетворения текущих и будущих потребностей в профессиональной деятельности.

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

Обмен знаниями и рост в гибридном сообществе – подход, основанный на социальном капитале: опыт Латвии

Guido Sechi, Jurgis Skilters, Marta Selecka, Liva Brice, Krista Leskevica

Гвидо Сечи, Юргис Скилтерс, Марта Селека, Лайв Брюс, Криста Лискевич

Журнал ИФЛА, 49–1, 87-98

Аннотация:

В данной статье исследуются модели обмена знаниями в гибридных сообществах, где виртуальные и очные каналы коммуникации дополняют друг друга. Структура исследования основана на теории социального капитала. Роль аспектов социального капитала и мотивационных факторов в стимулировании обмена различными формами знаний исследуется на индивидуальном уровне. Предлагаемая теоретическая модель тестируется с помощью моделирования структурными уравнениями, и анализ проводится на выборке из более чем 250 человек, принадлежащих к сообществу пользователей Латвийской национальной библиотеки. Результаты исследования подтверждают большинство теоретических гипотез, но с некоторыми неожиданными результатами, такими как соответствующая роль мотивационных факторов в стимулировании обмена сложными формами знаний, что подчеркивает специфическую природу гибридных сообществ.

Knowledge management, organizational culture and job performance in Nigerian university libraries

Управление знаниями, организационная культура и эффективность работы в нигерийских университетских библиотеках

Cyprian Ifeanyi Ugwu, Anthonia Ejikeme

Киприан Ифеаньи Угву, Антония Эджикеме

Журнал ИФЛА, 49–1, 99-116

Аннотация:

Целью данного исследования было изучение опосредующего влияния организационной культуры на взаимосвязь между практикой управления знаниями и эффективностью работы академических библиотекарей в университетских библиотеках Нигерии. В исследовании использовалась количественная методология исследования. Всего для проверки было предложено пять гипотез, и была разработана концептуальная модель для проверки значимости этих гипотез на уровне 0,05. Был использован анкетный опрос, и в общей сложности 230 академических библиотекарей согласились принять участие в исследовании. Собранные данные были проанализированы с помощью SPSS. Результаты исследования показывают, что управление знаниями и организационная культура внесли положительный и значительный вклад в эффективность работы. Результаты исследования также предоставляют убедительные доказательства в поддержку влияния организационной культуры на взаимосвязь между управлением знаниями и эффективностью работы академических библиотекарей в университетских библиотеках Нигерии.

Academic libraries and the need for continuing professional development in Botswana

Академические библиотеки и необходимость непрерывного профессионального развития в Ботсване

Olugbade Oladokun, Neo Patricia Mooko

Олугбаде Оладокун, Нео Патрисия Муко

Журнал ИФЛА, 49–1, 117-131

Аннотация:

Ожидается, что академический библиотекарь хорошо разбирается в выполняемых им задачах и оперативно предоставляет пользователям качественные услуги. Целью этого исследования являлось: определить понимание академическими библиотекарями изменений в их профессии и необходимости непрерывного профессионального развития; изучить восприятие библиотекарями качества библиотечного образования и информатики в Ботсване; выяснить, в какой степени академические библиотекари выполняют различные библиотечные и профессиональные функции. Принятая исследовательская парадигма представляла собой позитивистский подход. Используя метод переписи, авторы собрали количественные данные у практикующих библиотекарей, а качественные данные были получены от пяти руководителей библиотек. Исследование показало, что за прошедшие годы в работе библиотекарей произошли значительные изменения, поскольку в настоящее время от них требуется больше работать, приобретать новые навыки, а также выполнять новые задачи. При отсутствии подходящей стратегии непрерывного профессионального развития ощущалась нехватка достаточных знаний для выполнения информационных технологий и других важных задач. Также приводятся соответствующие рекомендации.

Community-driven care of Lanna palm-leaf manuscripts

Общественный уход за рукописями из пальмовых листьев Ланны

Piyapat Jarusawat Jarusawat, Andrew Cox

Пияпат Джарусават Джарусават, Эндрю Кокс

Журнал ИФЛА, 49–1, 132-142

Аннотация:

Рукописи на пальмовых листьях являются важной частью наследия культуры Ланна на севере Тайланда. Цель данной статьи - изучить практику и отношение к обращению с рукописями на пальмовых листьях в трех общинах на севере Таиланда. Необходимо выработать ориентированное на сообщество понимание устойчивого ухода за рукописями из пальмовых листьев. Исследование основано на тематически проанализированных интервью. Было обнаружено, что буддийские верования в получение заслуг и культурную ценность рукописей на пальмовых листьях лежат в основе заинтересованности сообщества. Вопрос лидерства также имел важное значение, хотя модели лидерства в каждом конкретном случае были разными. Внешние организации, такие как университеты, играют ключевую роль в каталогизации, сохранении и использовании рукописей из пальмовых листьев. Оцифровка, хотя и имеет центральное значение для внешних организаций, на самом деле не способствует большей доступности сообщества. Размышляя о движущих силах и проблемах на примерах трех деревень, автор статьи предлагает модель общинного ухода за рукописями на пальмовых листьях.

Preservation and conservation of indigenous manuscripts

Сохранение и консервация рукописей коренных народов

Sunil Tyagi

Сунил Тяги

Журнал ИФЛА, 49–1, 143-156

Аннотация:

Данное исследование представляет собой попытку изучить сохранность и статус сохранения наследия рукописей коренных народов в Центральной библиотеке Института Джайна Вишва Бхарати (Национальный университет), Раджастхан, Индия, которые неизвестны научному миру. Был проведен осмотр рукописей, чтобы выяснить их физическое состояние. Было проведено структурированное интервью с девятью сотрудниками отдела рукописей с целью получения информации о коллекциях рукописей и используемых в настоящее время методах их сохранения. Результаты показывают, что общая сохранность и методы сохранения, используемые в библиотеке, были признаны удовлетворительными в соответствии со стандартными операционными процедурами Национальной миссии по рукописям. Исследование также дает представление о характере коллекций рукописей и методах

их сохранения, применяемых при работе с рукописями.

Data science education programmes in Middle Eastern institutions: A survey study

Образовательные программы в области науки о данных в учреждениях Ближнего Востока: обзорное исследование

Mahmoud Sherif Zakaria

Махмуд Шериф Закария

Журнал ИФЛА, 49–1, 157-179

Аннотация:

В ответ на текущие тенденции в работе с данными в академических кругах различные исследовательские институты и коммерческие структуры по всему миру разрабатывают новые программы для заполнения пробелов в спросе на рабочую силу в конкретных дисциплинах, включая сбор данных, большие данные, управление данными, науку о данных и аналитику данных. Таким образом, целью настоящего исследования было выявить реальность образования в области науки о данных на Ближнем Востоке и определить возможности и проблемы для преподавания науки о данных в регионе. На момент проведения исследования тринадцать стран Ближнего Востока предлагали 48 программ в области науки о данных. Результаты показывают, что эти программы по изучению данных в значительной степени используют слова “данные” и “аналитика” в своих названиях. Что касается академической принадлежности программ в области науки о данных, исследование показало, что они предлагаются в различных школах, особенно в области компьютерных наук, информационных технологий и бизнеса. Более того, исследование показало, что информатика является доминирующим направлением в программах. Программы в области науки о данных в значительной степени пересекаются с другими программами, особенно в области статистики и информатики, из-за междисциплинарного характера этой области. Школы информатики на Ближнем Востоке различаются по названиям своих программ, описаниям программ, каталогам курсов, структуре учебных программ и целям курсов. В целом, это исследование может быть полезно для тех, кто стремится создать программу по науке о данных или укрепить учебные планы по науке о данных как на уровне бакалавриата, так и на уровне аспирантуры.

Examining the status of prison libraries around the world: A literature review

Изучение состояния тюремных библиотек по всему миру: обзор литературы

Syed Tauseef Hussain, Hina Batool, Ata ur Rehman, Syeda Kiran Zahra, Khalid Mahmood

Сайед Таусиф Хуссейн, Хина Батул, Ата ур Рехман, Сайеда Киран Захра, Халид Махмуд

Журнал ИФЛА, 49–1, 180-200

Аннотация:

Целью данного исследования является проведение обзора опубликованной литературы и освещение ситуации с тюремными библиотеками по всему миру. В исследовании предпринята попытка применить комплексный подход при обзоре литературы с целью географического обзора нынешнего состояния. Был проведен обзор имеющейся опубликованной литературы о тюремных библиотеках в местных и международных журналах по библиотечному делу и информатике. Исследователи также обратились к другим источникам, таким как книги, тезисы, диссертации, материалы конференций, веб-сайты библиотек, частные лица и профессиональные организации, включая Американскую библиотечную ассоциацию, Ассоциацию колледжей и исследовательских библиотек и ИФЛА. Используемые базы данных включали рефераты по библиотечным и информационным наукам, рефераты по библиотечным, информационным наукам и технологиям, Emerald, JSTOR, Google Scholar и ResearchGate. Ключевые слова, используемые для поиска, могут быть классифицированы как “тюремные библиотеки”, “тюремные библиотеки”, “библиотеки исправительных учреждений” и “реабилитационные центры”. В целом, полученные данные свидетельствуют о том, что положение тюремных библиотек в США, Великобритании, Европе и Азии (только в городских районах) намного лучше по сравнению с другими регионами мира. Такая ситуация обусловлена наличием ресурсов, доступом к Интернету, технологиями, автоматизированными каталогами, сотрудничеством с другими библиотеками, такими как публичные библиотеки, и регулярными бюджетами для бесперебойного ведения библиотечных дел. Нехватка профессионального персонала, отсутствие библиотечных площадей, ограниченные коллекции, проблемы с цензурой, плохое бюджетное положение, отсутствие библиотечных ассоциаций в развивающихся странах

и отсутствие сотрудничества между тюремными библиотеками и публичными библиотеками являются основными причинами нынешнего положения тюремных библиотек. Исследование уникально по своей природе, поскольку оно освещает ситуацию с тюремными библиотеками во всем мире через широкую призму, уделяя особое внимание стандартам, услугам и трудностям, а также рекомендациям, сделанным исследователями.

A systematic review of crisis management in libraries with emphasis on crisis preparedness

Систематический обзор антикризисного управления в библиотеках с акцентом на готовность к кризисам

Somaye Akhshik, Reza Rajabali Beglou

Сомайе Ахшик, Реза Раджабали Беглу

Журнал ИФЛА 49–1, 201-215

Аннотация:

Готовность к кризису имеет решающее значение для антикризисного управления во всех организациях, включая библиотеки. Библиотеки должны принимать решения о кризисных ситуациях, что требует планирования и готовности к кризисам. Цель этого систематического обзора состояла в том, чтобы проанализировать и определить основные проблемы, которые помогают библиотекам в принятии решений во времена кризиса. Всего было выявлено 2900 исследований с 1985 по 2020 год. После применения критериев включения и исключения 44 исследования были включены в процесс окончательного рассмотрения. Результаты исследования показывают, что наиболее часто в связи с управлением кризисными ситуациями основное внимание уделялось таким темам, как инструктаж по обеспечению готовности, учебные программы, оценка подготовки и важные факторы управления кризисными ситуациями. Более того, большинство исследований в первую очередь были сосредоточены на экономических или финансовых, а не на природных, социальных или связанных со здоровьем кризисах. Кроме того, в период с 2008 по 2017 год произошло значительное увеличение числа опубликованных статей, которые в основном рассматривались академическими и исследовательскими библиотеками. Кроме того, в последнее время в этих исследованиях увеличилось количество статей, посвященных готовности к кризисам и управлению ими.

A review of international education literature: Interdisciplinary and discovery challenges

Обзор международной образовательной литературы: междисциплинарные проблемы и открытия

Shanna Saubert, Liz Cooper

Шанна Сауберт, Лиз Купер

Журнал ИФЛА, 49–1, 216-229

Аннотация:

Обнаружение соответствующих исследований в области международного образования может быть затруднено из-за характера области и того, каким образом индексируются научные работы. В этой статье представлен обзор опубликованной международной образовательной литературы для определения ключевых тем и моделей публикаций, а также потенциальных пробелов и неравенства в текущем научном дискурсе. Используя ключевые слова “международное образование” и “глобальное образование”, автор анализа фокусируется на записях, извлеченных из Web of Science. Из 1492 рецензируемых журнальных статей, рассмотренных (опубликованных с 1991 по 2017 год), анализ выявил только 705 статей, имеющих отношение к области международного образования. Дополнительный анализ библиометрических данных показывает значительный рост международных образовательных публикаций за последние два десятилетия; развивающиеся тенденции в отношении тематических направлений и методов; а также различия в публикациях в отношении национальных контекстов и языков за пределами глобального Северного / англоязычного дискурса. Статья завершается рекомендациями по улучшению открытости, лучшему соединению различных областей международных исследований в области образования и расширению научного дискурса, включающего более разнообразную репрезентацию.

Strategies for checking misinformation: An approach from the Global South

(Estrategias para comprobar la desinformación: Un enfoque desde el Sur Global)

Anup Kumar Das, Gayatri Dwivedi, manorama Tripathi

IFLA Journal, 49–1, 3-17

Resumen:

La manipulación de la información para adaptarla a intereses particulares es un riesgo cada vez mayor. Contiene elementos de desinformación, de mala información y de fake news, y carece de autenticidad. Las consecuencias de dicha manipulación y distorsión de los hechos pueden ser graves para una comunidad, especialmente en una nación diversa como India. Es necesario adoptar medidas estrictas y sensibilizar a la población para frenar esta propagación. La tecnología cataliza aún más esta difusión. Instituciones, bibliotecas, gobiernos y medios de comunicación están buscando medios eficaces para distinguir las noticias falsas de las auténticas. En este artículo se detallan algunas de estas iniciativas. Analiza las Normas de Tecnología de la Información (Directrices para Intermediarios y Código Ético para Medios Digitales) de 2021 del Gobierno de India para frenar esa difusión engañosa, cuyos elementos pueden reproducirse en otras geografías. Pone de relieve el problema y subraya la necesidad de una alfabetización mediática e informativa para que todos seamos más perspicaces durante la recepción, el consumo y la asimilación de la información antes de reaccionar ante ella. Además, las iniciativas de comprobación de hechos y las normas sobre tecnología de la información adoptadas y elaboradas en India pueden reproducirse en otros países.

An evaluation of institutional repository development in African universities

(Una evaluación del desarrollo de repositorios institucionales en las universidades africanas)

Ebikabowei E. Baro, Anthonia U. Nwabueze-Echedom

IFLA Journal, 49–1, 18-38

Resumen:

La finalidad de este estudio es evaluar el desarrollo de los repositorios institucionales de las bibliotecas universitarias de África. Para la recopilación de datos de 134 bibliotecas universitarias de países africanos de habla inglesa se utilizaron un cuestionario en línea y métodos de investigación de instalaciones de repositorios institucionales. El estudio concluye que existe una creciente ola de desarrollo de repositorios institucionales en los países anglófonos de África. La mayoría de los repositorios institucionales contienen un elevado número de tesis y disertaciones, seguidas de artículos de publicaciones, así como ponencias de conferencias y talleres. Entre los retos identificados se encuentran unas instalaciones inadecuadas, una conectividad a Internet inestable, la falta de fondos, un suministro eléctrico irregular, la recogida de material para los repositorios institucionales, la falta de personal cualificado en tecnologías de la información y la comunicación, los problemas de derechos de autor y la ausencia de políticas institucionales sobre repositorios. Las conclusiones del estudio aportan datos y conocimientos importantes sobre el desarrollo de los repositorios institucionales en las bibliotecas universitarias en el contexto de los países en desarrollo, y ofrecen sugerencias tanto para los bibliotecarios universitarios como para los equipos de gestión.

Collections, care, and the collective: Experiments in collaborative fieldwork in area studies librarianship

(Colecciones, cuidado y lo colectivo: Experimentos de trabajo de campo colaborativo en biblioteconomía de estudios de área)

Ellen Ambrosone, Laura Ring, Mara Thacker

IFLA Journal, 49–1, 39-51

Resumen:

Mientras que la formación en biblioteconomía sigue ampliando la comprensión de la colaboración y su potencial para transformar la colección colectiva, los viajes de adquisición de los bibliotecarios han estado en gran medida ausentes del debate. A principios de 2020, tres bibliotecarias de estudios sudasiáticos afincadas en EE.UU. viajaron juntas a la India, descartando los viajes en solitario en favor de un modelo de trabajo de campo en colaboración Utilizando este viaje como caso práctico, las autoras recurren a la literatura interdisciplinar para explorar cómo la intersección de identidades y la naturaleza encarnada del trabajo de campo moldean los resultados de la colección colectiva. Reflexionan sobre cómo poner en primer plano el cuidado en el campo puede converger con los esfuerzos por construir colecciones más éticas. Por último, las autoras consideran las posibilidades de un cambio hacia la colaboración que vaya más allá de la mera coordinación, y ofrecen sugerencias sobre cómo podría defenderse una perspectiva relacional en su trabajo. En el punto de intersección de la teoría y la práctica, este artículo ayuda a los lectores a comprender el trabajo holístico que subyace a la biblioteconomía de estudios de área, y ofrece una visión de la mejora de la práctica en este campo.

Croatian adolescents' credibility judgments in making everyday life decisions

(Los juicios de credibilidad de los adolescentes croatas en la toma de decisiones de la vida cotidiana)

Alica Kolaric

IFLA Journal, 49–1, 52-60

Resumen:

El objetivo de este estudio era investigar cómo juzgaban los estudiantes de secundaria la credibilidad de la información obtenida como ayuda para tomar decisiones en la vida cotidiana. Se llevaron a cabo entrevistas individuales semiestructuradas para revelar qué razones se escondían detrás de su creencia en la calidad, exactitud y utilidad de la información. Los resultados revelan que los alumnos prefirieron recurrir a fuentes de información interpersonales. La información obtenida se percibía como creíble en los casos en que la fuente se caracterizaba por atributos que expresaban competencia y fiabilidad (como experiencia, conocimientos y precisión). Otros importantes indicadores de la credibilidad de la información en los casos de fuentes de información interpersonales fueron las características que expresaban la confianza personal y la calidad de la relación con la fuente. La información en las redes sociales se evaluó a través de indicios generados socialmente que expresaban la reputación y la popularidad en la comunidad de usuarios. Por último, se verificó la credibilidad comprobando la coherencia de la información procedente de múltiples fuentes.

Open government data initiatives in the Maghreb countries: An empirical analysis

(Iniciativas de datos gubernamentales abiertos en los países del Magreb: Un análisis empírico)

Elsayed Elsawy, Ahmed Shehata

IFLA Journal, 49–1, 61-73

Resumen:

Este artículo explora las prácticas seguidas para conservar y compartir datos en los portales de datos abiertos de los países del Magreb, y evalúa si su estructura y organización son coherentes con los objetivos de los mismos. Se elaboró un conjunto de características que deben reunir los portales de datos abiertos y, a continuación, se utilizó como marco para analizar la estructura y la organización de los portales de datos abiertos en los países del Magreb. El estudio adoptó un enfoque de análisis de contenido para analizar el contenido de cinco portales de datos abiertos (situados en Libia, Túnez, Argelia, Marruecos y Mauritania). Las conclusiones indican que los portales de datos abiertos de los países del Magreb proporcionan datos de diferentes ministerios, comunidades locales y organizaciones. Las conclusiones señalan también que los portales de datos gubernamentales abiertos de Argelia y Marruecos carecen de traducción de los contenidos al inglés, lo que afecta a las personas que no hablan árabe. Además, la adopción de políticas de datos abiertos se encuentra aún en sus primeras fases. La originalidad del estudio reside en ser el primero que se centra en los países del Magreb árabe y en el alcance de sus avances en la adopción y puesta a disposición de datos abiertos.

Comparison of library studies programs in Croatia and the USA

(Comparación de los programas de estudios de biblioteconomía en Croacia y EE.UU.)

Angela R Davis, Stephanie Diaz Diaz, Russell A Hall, Margita Mirceta Zakarija, Irena Urem

IFLA Journal, 49–1, 74-86

Resumen:

Este estudio describe y compara los requisitos educativos mínimos de los programas de biblioteconomía y ciencias de la información que se imparten en Croacia y EE UU. El artículo se suma a investigaciones anteriores sobre educación comparada y biblioteconomía comparada. Las conclusiones muestran notables diferencias y similitudes entre los dos países. El itinerario educativo en biblioteconomía y ciencias de la información en Croacia está más estructurado, ya que requiere una licenciatura además de un máster, así como una titulación de postgrado. En Estados Unidos solo se suelen ofrecer programas de postgrado en este campo. Los programas de biblioteconomía y ciencias de la información de ambos países son generalmente flexibles y muy personalizables. En ambos países se exigen varios cursos básicos de biblioteconomía, sin embargo, los programas croatas hacen un mayor hincapié en los currículos de tecnología y gestión de colecciones. Por el contrario, los programas de biblioteconomía y ciencias de la información de EE.UU. exigen más cursos de gestión y ofrecen a los estudiantes una mayor flexibilidad en cuanto a la elección

de cursos. Este artículo puede ayudar a los docentes de las escuelas de biblioteconomía a evaluar sus programas para abordar las necesidades profesionales actuales y futuras.

Knowledge exchange and growth in a hybrid community – a social-capital-based approach: Evidence from Latvia

(Intercambio de conocimientos y crecimiento en una comunidad híbrida - un enfoque basado en el capital social: Evidencias de Letonia)

Guido Sechi, Jurgis Skilters, Marta Selecka, Liva Brice, Krista Leskevica

IFLA Journal, 49–1, 87-98

Resumen:

Este artículo investiga los patrones de intercambio de conocimientos en comunidades híbridas en las que se complementan los vínculos de comunicación virtuales y presenciales. El marco del estudio se basa en la teoría del capital social. Se investiga el papel de las dimensiones del capital social y de los factores de motivación en el fomento del intercambio de diferentes formas de conocimiento a nivel individual. El modelo teórico propuesto se pone a prueba a través de la modelización de ecuaciones estructurales, y el análisis se realiza sobre una muestra de más de 250 individuos pertenecientes a la comunidad de usuarios de la Biblioteca Nacional de Letonia. Los resultados confirman la mayoría de las hipótesis teóricas, pero con algunos resultados inesperados -como el papel relevante de los factores motivacionales en el fomento del intercambio de formas complejas de conocimiento- que ponen de relieve la naturaleza específica de las comunidades híbridas.

Knowledge management, organizational culture and job performance in Nigerian university libraries

(Gestión del conocimiento, cultura organizativa y rendimiento laboral en las bibliotecas universitarias nigerianas)

Cyprian Ifeanyi Ugwu, Anthonia Ejikeme

IFLA Journal, 49–1, 99-116

Resumen:

El objeto de este estudio era investigar el efecto mediador que ejerce la cultura organizativa en la relación entre las prácticas de gestión del conocimiento y el rendimiento laboral de los bibliotecarios académicos de las bibliotecas universitarias de Nigeria. En el estudio se utilizó una metodología de investigación cuantitativa. Se propusieron un total de cinco hipótesis para su comprobación y se desarrolló un modelo conceptual para comprobar la relevancia de estas hipótesis al nivel del 0,05. Se utilizó un cuestionario y un total de 230 bibliotecarios académicos aceptaron participar en el estudio. Los datos recogidos se analizaron con ayuda de SPSS. Los resultados del estudio revelan que la gestión del conocimiento y la cultura organizativa influyeron positiva y significativamente en el rendimiento laboral. Los resultados del estudio también aportan pruebas convincentes que respaldan el impacto de la cultura organizativa en la relación entre la gestión del conocimiento y el rendimiento laboral de los bibliotecarios académicos de las bibliotecas universitarias de Nigeria.

Academic libraries and the need for continuing professional development in Botswana

(Las bibliotecas académicas y la necesidad de un desarrollo profesional continuo en Botsuana)

Olugbade Oladokun, Neo Patricia Mooko

IFLA Journal, 49–1, 117-131

Resumen:

De un bibliotecario académico se espera que sea competente en las tareas que realiza y que facilite a los usuarios servicios de calidad con prontitud. Este estudio pretendía determinar el conocimiento que tienen los bibliotecarios académicos acerca de los cambios en su profesión y la necesidad de un desarrollo profesional continuo; examinar la percepción que tienen los bibliotecarios respecto a la calidad de la formación en biblioteconomía y ciencias de la información en Botsuana; y averiguar en qué medida los bibliotecarios académicos desempeñan diferentes funciones bibliotecarias y profesionales. El paradigma de investigación adoptado fue un enfoque positivista. Utilizando el método del censo, se recabaron datos cuantitativos de bibliotecarios en activo y datos cualitativos de cinco responsables de bibliotecas. El estudio constató que se habían producido cambios significativos en los puestos de trabajo de los bibliotecarios a lo largo de los años, ya que actualmente se les exigía trabajar más, aprender más competencias y realizar nuevas tareas. Sin una estrategia adecuada de desarrollo profesional continuo, se carecía de los conocimientos adecuados para desempeñar las tareas informáticas y otras tareas destacadas. Se formulan las recomendaciones oportunas.

Community-driven care of Lanna palm-leaf manuscripts

(Cuidado comunitario de los manuscritos de hoja de palma en Lanna)

Piyapat Jarusawat Jarusawat, Andrew Cox

IFLA Journal, 49–1, 132-142

Resumen:

Los manuscritos de hoja de palma son una parte importante del patrimonio de la cultura Lanna del norte de Tailandia. La finalidad de este artículo es explorar las prácticas y actitudes hacia la gestión de los manuscritos de hoja de palma en tres comunidades del norte de Tailandia con el objetivo de desarrollar una comprensión centrada en la comunidad sobre el cuidado sostenible de los manuscritos de hoja de palma. El estudio se basó en entrevistas, que se analizaron temáticamente. Se descubrió que las creencias budistas en la obtención de méritos y el valor cultural de los manuscritos de hoja de palma subyacen a la implicación de la comunidad. El liderazgo también era importante, aunque los modelos de liderazgo eran diferentes en cada caso. Las organizaciones externas, como las universidades, desempeñan un papel fundamental en la catalogación, conservación y utilización de los manuscritos de hoja de palma. La digitalización, aunque es fundamental para el valor para las organizaciones externas, no fomenta realmente el acceso de la comunidad. Sobre la base de los factores determinantes y los retos de las tres aldeas, se propone un modelo de cuidado de los manuscritos de hoja de palma gestionado por la comunidad.

Preservation and conservation of indigenous manuscripts

(Preservación y conservación de manuscritos indígenas)

Sunil Tyagi

IFLA Journal, 49–1, 143-156

Resumen:

Este estudio es un esfuerzo por investigar el estado de preservación y conservación del patrimonio de manuscritos indígenas en la Biblioteca Central del Instituto Jain Vishva Bharati (Universidad Considerada), Rajastán, India, que son desconocidos para el mundo académico. Se realizó un estudio de los manuscritos para investigar su estado físico. Se mantuvo una entrevista estructurada con nueve miembros del personal de la sección de manuscritos con el fin de obtener información sobre las colecciones de manuscritos y las técnicas de preservación y conservación empleadas en la actualidad. Las conclusiones revelan que las técnicas generales de preservación y conservación utilizadas en la biblioteca resultaron satisfactorias de acuerdo con los procedimientos operativos estándar de la Misión Nacional de Manuscritos. El estudio permite también comprender la naturaleza de las colecciones de manuscritos y las técnicas de preservación y conservación empleadas con ellos.

Data science education programmes in Middle Eastern institutions: A survey study

(Programas de formación en ciencia de datos en instituciones de Oriente Medio: Estudio mediante encuestas)

Mahmoud Sherif Zakaria

IFLA Journal, 49–1, 157-179

Resumen:

Como respuesta a las tendencias actuales en el tratamiento de datos en el mundo académico, varias instituciones dedicadas a la investigación y entidades comerciales de todo el mundo están creando nuevos programas destinados a cubrir las lagunas en la demanda de mano de obra en disciplinas específicas, como la curación de datos, el big data, la gestión de datos, la ciencia de datos y el análisis de datos. De este modo, el objetivo del presente estudio fue revelar la realidad de la enseñanza de la ciencia de datos en Oriente Próximo y determinar las oportunidades y los retos para la enseñanza de la ciencia de datos en la región. En el momento del estudio, trece países de Oriente Próximo ofrecían 48 programas de ciencia de datos. Los resultados ponen de manifiesto que estos programas de ciencia de datos utilizan de forma significativa las palabras "datos" y "analítica" en sus nombres. En cuanto a las afiliaciones académicas de los programas de ciencia de datos, el estudio constató que se imparten en diversas facultades, sobre todo de informática, tecnología de la información y empresariales. Además, el estudio reveló que la informática es la tendencia dominante en los programas. Los programas de ciencia de datos presentan un importante solapamiento con otros programas, especialmente los de estadística e informática, debido a la naturaleza interdisciplinar de este campo. Las escuelas de ciencia de

datos de Oriente Medio difieren en cuanto a los títulos de sus programas, las descripciones de los mismos, los catálogos de cursos, las estructuras curriculares y los objetivos de los cursos. En términos generales, este estudio puede ser útil para quienes pretendan establecer un programa de ciencia de datos o reforzar los planes de estudios de ciencia de datos tanto a nivel de licenciatura como de postgrado.

Examining the status of prison libraries around the world: A literature review

(Análisis de la situación de las bibliotecas penitenciarias en el mundo: Una revisión bibliográfica)

Syed Tauseef Hussain, Hina Batool, Ata ur Rehman, Syeda Kiran Zahra, Khalid Mahmood

IFLA Journal, 49–1, 180-200

Resumen:

El objetivo de este estudio es revisar la bibliografía publicada y poner de relieve la situación de las bibliotecas penitenciarias de todo el mundo. El estudio se esfuerza por adoptar un enfoque global a la hora de revisar la bibliografía con el fin de estudiar la situación actual desde el punto de vista geográfico. Se ha revisado la literatura publicada disponible sobre bibliotecas penitenciarias en revistas locales e internacionales de biblioteconomía y ciencias de la información. Los investigadores también consultaron otras fuentes, como libros, tesis, disertaciones, actas de congresos, páginas web de bibliotecas, particulares y organizaciones profesionales, como la American Library Association, la Association of College and Research Libraries e IFLA. Las bases de datos utilizadas fueron Library and Information Science Abstracts, Library, Information Science and Technology Abstracts, Emerald, JSTOR, Google Scholar y ResearchGate. Las palabras clave utilizadas para la búsqueda pueden clasificarse como "bibliotecas de prisiones", "bibliotecas de cárceles", "bibliotecas de instituciones penitenciarias" y "centros de rehabilitación". En general, las conclusiones sugieren que la situación de las bibliotecas penitenciarias en EE.UU., Reino Unido, Europa y Asia (solo en las zonas urbanas) es mucho mejor que en las demás regiones del mundo. Esta situación se debe a la disponibilidad de recursos, al acceso a Internet, a la tecnología, a los catálogos automatizados, a la cooperación con otras bibliotecas, como las públicas, y a los presupuestos regulares para administrar los asuntos bibliotecarios sin complicaciones. La falta de personal profesional, la falta de espacio en las bibliotecas, las colecciones limitadas, los problemas de censura, la mala situación presupuestaria, la ausencia de asociaciones de bibliotecarios en los países en desarrollo y la falta de cooperación entre las bibliotecas de las prisiones y las bibliotecas públicas son las principales causas de la situación actual de las bibliotecas de las prisiones. El estudio es único por su naturaleza, ya que pone de relieve la situación de las bibliotecas penitenciarias de todo el mundo a través de un amplio prisma, centrándose en las normas, los servicios y las dificultades, así como en las recomendaciones formuladas por los investigadores.

A systematic review of crisis management in libraries with emphasis on crisis preparedness

(Una revisión sistemática de la gestión de crisis en las bibliotecas con énfasis en la preparación ante las crisis)

Somaye Akhshik, Reza Rajabali Beglou

IFLA Journal, 49–1, 201-215

Resumen:

La preparación ante las crisis es fundamental para su gestión en todas las organizaciones, incluidas las bibliotecas. Las bibliotecas deben tomar decisiones sobre situaciones de crisis, lo que requiere planificación y preparación para las crisis. El objetivo de esta revisión sistemática fue analizar e identificar las principales cuestiones que ayudan a las bibliotecas en la toma de decisiones en tiempos de crisis. Se identificaron un total de 2900 estudios fechados entre 1985 y 2020. Tras la aplicación de los criterios de inclusión y exclusión, en el proceso de revisión final se incluyeron 44 estudios. Las conclusiones del estudio indican que los temas que se trataron con mayor frecuencia en relación con la gestión de crisis fueron la instrucción sobre la preparación, los programas de formación, la evaluación de la preparación y los factores importantes en la gestión de crisis. Además, la mayoría de los estudios estaban centrados principalmente en las crisis económicas o financieras y no en las naturales, sociales o sanitarias. Además, entre 2008 y 2017, se produjo un aumento significativo en el número de artículos publicados considerados en su mayoría bibliotecas académicas y de investigación. Asimismo, en estas investigaciones han aumentado recientemente los artículos que tratan sobre la preparación y la gestión de crisis.

A review of international education literature: Interdisciplinary and discovery challenges

(Una revisión de la literatura sobre educación internacional: Retos interdisciplinares y de descubrimiento)

Shanna Saubert, Liz Cooper

IFLA Journal, 49–1, 216-229

Resumen:

El descubrimiento de investigaciones relevantes en el campo de la educación internacional puede resultar complicado debido a la naturaleza del campo y a la forma de indexar los trabajos académicos. Este artículo presenta una revisión de la literatura publicada sobre educación internacional para identificar los temas clave y los patrones de publicación, junto con las posibles carencias y desigualdades en el discurso académico actual. Utilizando las palabras clave "educación internacional" y "educación global", los análisis se centran en los registros recuperados de Web of Science. De los 1492 artículos de revistas revisadas por pares examinados (publicados entre 1991 y 2017), los análisis revelaron solo 705 artículos relevantes para el ámbito de la educación internacional. Los análisis adicionales de los datos bibliométricos muestran un significativo crecimiento de las publicaciones sobre educación internacional en las dos últimas décadas; tendencias cambiantes en cuanto a los focos temáticos y los métodos; y disparidades de publicación en cuanto a los contextos nacionales y las lenguas fuera del discurso dominado por el Norte Global/anglófono. El artículo concluye con recomendaciones para mejorar la capacidad de descubrimiento, conectar mejor las distintas áreas de investigación sobre educación internacional y ampliar el discurso académico para incluir una representación más diversa.