

Infodemic, disinformation and fake news: the role of libraries in Post-Truth Society

Infodemia, desinformação e fake news: o papel das bibliotecas na Sociedade da Pós-Verdade

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ABSTRACT

This study's purpose is to systematically review the literature to identify the most recent library practices against fake news. Previous findings showed most studies emphasize academic libraries practices and are mainly focused on information literacy instruction. This article updates prior research aiming to acknowledge the tangible practices of libraries, discuss their efficiency, and continue a categorization of those practices. It was performed a systematic literature review of the last 12 months (October 2020-September 2021) to retrieve the most recent library practices. After the extraction, with a final set of 17 documents, a multi-step qualitative analysis, and a categorization were developed. The current debate is still around information literacy strategies that intend to reiterate an authority-based source evaluation versus the challenge to recognize an emotional-based reaction to

fake news in a post-truth world. The role of libraries is cornered in an instructional framework, while disinformation is pervasive in several information ecosystems. The role of libraries in a Post-truth society is still an open debate, yet there is almost a consensus that libraries should engage in partnerships and be part of a multidisciplinary approach.

KEYWORDS: Fake News; Misinformation; Disinformation; Post-truth; Librarians; Library Practices; Systematic Literature Review.

RESUMO

O objetivo deste estudo é rever sistematicamente a literatura para identificar as práticas mais recentes das bibliotecas contra as fake news. Resultados prévios mostraram que a maioria dos estudos enfatiza as práticas das bibliotecas do ensino superior e estão principalmente centrados na formação em literacia da informação. Este artigo atualiza uma investigação anterior com o objetivo de reconhecer as práticas tangíveis das bibliotecas, discutir a sua eficiência, e continuar uma categorização dessas práticas. Foi realizada uma revisão sistemática da literatura dos últimos 12 meses (Outubro 2020-Setembro 2021) para recuperar as práticas mais recentes das bibliotecas. Após a extração, com um conjunto final de 17 documentos, foi desenvolvida uma análise qualitativa em várias etapas e uma categorização. O debate atual continua em torno de estratégias de literacia da informação que pretendem reiterar uma avaliação das fontes baseada na autoridade versus o desafio de reconhecer uma reação emocional a notícias falsas num mundo de pós-verdade. O papel das bibliotecas está encurralado num quadro formativo, enquanto a desinformação invade vários ecossistemas de informação. O papel das bibliotecas na sociedade da pós-verdade é ainda um debate em aberto, mas existe quase um consenso de que as bibliotecas devem envolver-se em parcerias e fazer parte de uma abordagem multidisciplinar.

PALAVRAS-CHAVE: Notícias falsas; Desinformação; Pós-verdade; Bibliotecários; Práticas das Bibliotecas; Revisão Sistemática da Literatura.

INTRODUCTION

In the last five years, fake news became a hot topic in scientific research. Health, media, information, political and social studies are some of the fields

seriously concerned with this phenomenon analysis. The COVID-19 pandemic management demanded clear communication strategies by the public authorities and the media to avoid panic, explain health control measures, and enlighten people about coronavirus behavior or the vaccination process, which reinforced the necessity to tame the impact of fake news, disinformation, and misinformation.

This research intends to assess the role of libraries in countering these phenomena. Following and updating prior research (Revez & Corujo, 2021), aims to acknowledge the tangible practices of libraries, discuss their efficiency, and continue a categorization of those practices. With a narrower time range (the last 12 months), seeks to revisit the relationship between libraries and the fight against the fake news phenomenon, analyze the most recent literature and categorize evidenced practices.

Previous findings showed most studies emphasize academic libraries practices and were mainly focused on information literacy instruction. Simply put, the major debate is between those who are confident that through information literacy instruction is possible to provide competencies and skills to patrons, and strengthen their ability to assess, avoid and not share fake news, mainly through an authority-based source evaluation; and those who question information literacy efficiency, as post-truth implies an emotional and cognitive dimension, which goes far beyond the domain of information search and evaluation skills, claiming that information literacy impact has been poorly studied. Without impact data, one cannot sustain information literacy as a real solution, therefore, the struggle to find alternatives remain open, and information literacy strategies also need broad development (Revez & Corujo, 2021).

The COVID-19 pandemic brought up new challenges to libraries' strategies. Despite the disruption of the information monopoly in the last decades, libraries are now facing an infodemic: "simply put, is an overabundance of information, good and bad. Together, it forms a virtual tsunami of data and advice that makes it hard for people in all walks of life to find clear messages, trustworthy sources, and reliable guidance when they need them. Some of it is merely confusing, but some of the misinformation can be actively harmful to life" (World Health Organization, 2020, p. 1).

This information deluge worsens the information disorder scenario. In a Council of Europe report, three types of information disorder are depicted: "Mis-information is when false information is shared, but no harm is meant; Dis-information is when false information is knowingly shared to cause harm; Mal-information is when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere"

(Wardle & Derakshan, 2017, p. 5). Libraries are pointed out as partners for Education Ministries or Departments of Education: “Libraries are one of the few institutions where trust has not declined, and for people no longer in full time education, they are a critical resource for teaching the skills required for navigating the digital ecosystem. We must ensure communities can access both online and offline news and digital literacy materials via their local libraries” (Wardle & Derakshan, 2017, p. 84).

The major problem of misinformation circulation, especially during the COVID-19 pandemic, is that despite being false information, it “was not created with the intention of hurting others. Misinformation is often started by someone who genuinely wants to understand a topic and cares about keeping other people safe and well. It is then shared by others who feel the same. Everyone believes they are sharing good information – but unfortunately, they are not. And depending on what is being shared, the misinformation can turn out to be quite harmful” (World Health Organization, 2021). Much more dangerous is disinformation – “nonaccidentally misleading information” (Fallis, 2015) or “intentionally misleading information” (Søe, 2021) –, “false information created with the intention of profiting from it or causing harm. That harm could be to a person, a group of people, an organization or even a country. Disinformation generally serves some agenda and can be dangerous. During this pandemic, we are seeing it used to try to erode our trust in each other and in our government and public institutions” (World Health Organization, 2021).

Although not a consensual term among the scientific community, fake news is a genre (pseudo-journalistic disinformation deliberately created) and a label (political instruments to delegitimize news media) (Egelhofer & Lecheler, 2019), and fake news dissemination may fall in disinformation or misinformation categories, according to its intention to be harmful. Intentionality is a key dimension, as false information is misinformation, but adding intention results in disinformation (or fake news) (Agarwal & Alsaeedi, 2021). Lim defines fake news as “intentionally misleading and biased representational information for the benefit of the message sender, which contains false information, with or without a blend of one or more components of omitted important information, a decontextualized content, misleading headlines or clickbait” (Lim, 2020, pp. 2–3). Anstead refers to three forms of fake news – fake news as satire, fake news as misleading content, and fake news as populist rhetoric – but observes them as distinct responses to an ongoing and evolving crisis in democratic and media legitimacy (Anstead, 2021). These traditional and authoritative elements were challenged by the consequences

of pluralism, somehow exacerbated by social media and its different fora of (free) speech. It's a paradox, as fake news is part of democratic life but profoundly anti-democratic. Therefore, fake news reveals greater problems, like politicization and weaponization of information, traditional media crisis, and technological incapacity to control the spread of misinformation (Zimdars & Mcleod, 2020). Truth and trust are bonded: "a crisis of truth is first and foremost a crisis of trust, signaling a sociopolitical breakdown even before an epistemic one" (Cosentino, 2020, pp. 142–143). In sum, fake news is a serious threat to information ecosystems, as truth is no longer related to authority, expertise, or real facts, but to interpretation, perception, emotions, and sentiments (Cooke, 2018).

Post-truth society arises as a new setting and a new challenge with a global effect (P. J. Lor, 2018; Peters et al., 2018; Cosentino, 2020). As a consequence of information disorder, mainly the social media information environment, new consuming behaviors are the grounds of post-truth: "The overconsumption of information fuelled by the internet has produced a so-called 'post-truth' society in which people consume information that reaffirms their pre-existing beliefs and ideologies rather than attempting the difficult task of identifying the truth" (De Paor & Heravi, 2020, p. 1). Fake news is "a calling card of the post-truth condition, whereby the contesting parties accuse each other of imposing the wrong conceptual framework for telling what is true and false" (Fuller, 2018, p. 185). More, "post-truth amounts to a form of ideological supremacy, whereby its practitioners are trying to compel someone to believe in something whether there is good evidence for it or not. And this is a recipe for political domination" (McIntyre, 2018, p. 13).

In this difficult and complex scenario, libraries' efforts to counteract fake news are only beginnings, especially framed by their educational roles: "Libraries help to counter fake news both through specific educative actions aimed at it and by being broadly educative institutions with a coherent notion of their role and relationship to informational discernment in democratic society" (Buschman, 2019, p. 222). Libraries' answers to the 'alternative facts' were diverse but the main response channel was information literacy instruction, as a comprehensive strategy developed within libraries' educational *ethos* in the past decades (Agosto, 2018; Dalkir & Katz, 2020).

Some authors have strongly criticized the confident self-perception of libraries' abilities to counter fake news, but LIS research had scarcely studied the impact of information literacy and other strategies. Sullivan is one of those critics, claiming that "The most pressing problem with LIS solutions to the problem of misinformation is that they remain untested. Responding to

the problems of fake news, LIS authors have made testable claims, but these are presented as statements rather than questions (...) Even when some have sought to measure impact, they have demonstrated a need that information literacy is believed to be able to meet, rather than the actual impact of literacy in meeting that need" (Sullivan, 2019b, p. 2). The damage of disinformation led librarians to take their place on the front line against fake news (Affelt, 2019), fetching their strategies and methods experimented for many years. However, there is not enough evidence of the success of these strategies and methods employed by librarians against fake news, as Sullivan had already pointed out: "It is thus essential to note that both the shortcomings and successes of checklists or other approaches remain theoretical, as there has been little empirical testing of their effectiveness—and none in the context of fake news" (Sullivan, 2019a, p. 101). Other authors state that "even this initial criticism, though, has not fully appreciated the complex challenges that librarians need to navigate to develop misinformation programming" (Young et al., 2020, p. 10). The relevancy of acknowledging libraries' practices remains at the core of the debate between librarians' positive self-perception and an effective impact assessment of their efforts.

Based on the identified research challenges, this study addresses the following research questions:

RQ1: *In the last 12 months, what were the strategies and methods employed by librarians to fight against fake news?*

RQ2: *Is it possible to reuse the categorization of libraries' practices?*

This paper includes a research methods section, explaining the procedures of data extraction and the final dataset analysis. The findings and discussion sections contain the qualitative analysis and the categorization obtained through the analysis of the dataset. The conclusion intends to answer the research questions of the study. The final references list includes not only the literature analyzed in the findings section but also other background sources used for a comprehensive acknowledgment of the subject.

METHODS

To answer RQ1 and provide insights to RQ2, it was performed a systematic literature review of the last 12 months to retrieve the most recent library practices. Following PRISMA (*Preferred Reporting Items for Systematic Reviews*

and *Meta-Analyses*) statement, a “systematic review is a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review” (Moher et al., 2009, p. 1).

A systematic literature review implies study selection criteria “intended to identify those primary studies that provide direct evidence about the research question. In order to reduce the likelihood of bias, selection criteria should be decided during the protocol definition” (Kitchenham, 2004, p. 9). Following RQ1, the main condition was to identify recent studies that report or discuss library practices against fake news. Therefore, the documents’ selection was guided by this only purpose, without language, country, type of library, or author standpoint biases.

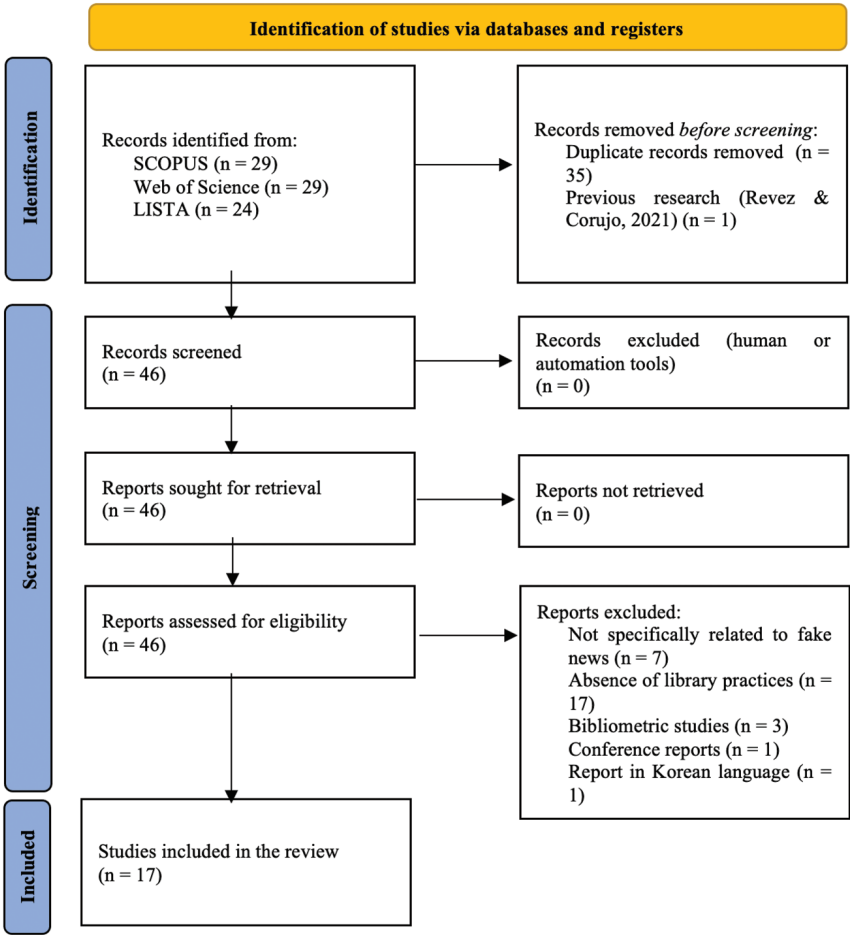
Focusing on methods reproducibility, it was used the same literature retrieval process as the prior research (Revez & Corujo, 2021). The systematic retrieval used a combination of search terms encompassing the primary concepts of library/libraries/librarians and fake news. The scope of the literature review was not limited to one area of librarianship or region. The literature was retrieved on September 30th, 2021. Table 1 identifies the followed search strategies. The databases chosen were considered primarily for their importance, relevance, and quality (Web of Science and Scopus); and secondly, for their relevance within the LIS field (LISTA - Library, Information Science & Technology Abstracts). There were no limitations concerning the languages of publication, though the search terms were only used in English.

Table 1 - Databases, search strategies, and number of results (1-Oct-2020 - 30-Sep-2021)

Database	Search Strategy	Number of results
SCOPUS	TITLE-ABS-KEY (librar* AND “fake news”) AND PUBDATETXT (“October 2020” OR “November 2020” OR “December 2020”) OR PUBYEAR = 2021	29
Web of Science	TOPIC: (librar* AND “fake news”). Timespan: 2020-10-01 to 2021-09-30 (Publication Date). All Databases.	29
LISTA	TI (librar* AND “fake news”) OR AB (librar* AND “fake news”) OR SU (librar* AND “fake news”) OR KW (librar* AND “fake news”) Expanders: Apply equivalent subjects Limiters: Publication Date: 20201001-20210930 Source Types: Academic Journals Excluded: Magazines (4) Trade Publications (6) Reviews (1)	24

A total of 82 articles were retrieved and organized in a Microsoft Excel sheet. Following PRISMA 2020 flow diagram (Page et al., 2021), cleaning of duplicates resulted in 46 articles. After this step, all the articles' titles and abstracts were read and analyzed to assess their correspondence with the research questions. This assessment excluded 29 articles, resulting in a dataset of 17 results. The qualitative analysis was made with this dataset. All this process is represented through a PRISMA 2020 flow diagram (Figure 1).

Figure 1 - PRISMA 2020 flow diagram (Page et al., 2021)



In the final dataset (Table 2), there are authors from the USA, UK, Canada, China, Turkey, Portugal, Italy, South Africa, Nigeria, and the Philippines. This reveals the worldwide dimension of the fake news research interest and the relevance of the theme.

Table 2 - Final set of publications for analysis (n=17)

ID	Title	Publication	Reference
1	Automated fake news detection in the age of digital libraries	Information Technology and Libraries	(Mertoğlu & Genç, 2020)
2	Check your bias at the school library door: The power of the school librarian in an evolving information landscape	Advances in Librarianship	(Mignardi & Sturge, 2021)
3	Como combater as fake news através da literacia da informação? Desafios e estratégias formativas no ensino superior	BiD	(Antunes et al., 2021)
4	Creation, dissemination and mitigation: toward a disinformation behavior framework and model	Aslib Journal of Information Management	(Agarwal & Alsaeedi, 2021)
5	Culture wars, libraries and the BBC	Library Management	(Usherwood & Usherwood, 2021)
6	Emerging (information) realities and epistemic injustice	Journal of the Association for Information Science and Technology	(Oliphant, 2021)
7	Flip this house!: Updating and designing an online First Year Seminar module series.	Journal of Library & Information Services in Distance Learning	(Peuler & Coltrain, 2020)
8	Information literacy education during the pandemic: The cases of academic libraries in Chinese top universities.	Journal of Academic Librarianship	(Guo & Huang, 2021)
9	On fake news, gatekeepers and LIS professionals: the finger or the moon?	Digital Library Perspectives	(Fontanin, 2021)
10	Optimizing Library Services — Voter Fraud, COVID-19 #VaccinesKill, and Social Media Censoring: How Librarians and Educators Can Combat Fake News and Misinformation.	Against the Grain	(Delellis & Rubin, 2020)

ID	Title	Publication	Reference
11	Re-thinking Information Ethics: Truth, conspiracy theories, and librarians in the Covid-19 era	Libri	(P. Lor et al., 2021)
12	Roles of Librarians in Combating Misinformation on Corona Virus Disease (COVID-19)	Library Philosophy and Practice	(Pelemo et al., 2021)
13	The fake news wave: Academic libraries' battle against misinformation during COVID-19	Journal of Academic Librarianship	(Bangani, 2021)
14	The role of libraries in misinformation programming: A research agenda	Journal of Librarianship and Information Science	(Young et al., 2020)
15	Toward a comprehensive model of fake news: A new approach to examine the creation and sharing of false information	Societies	(Weiss et al., 2021)
16	Using Mobile Apps to Combat Fake News	Journal of Electronic Resources in Medical Libraries	(Becker, 2021)
17	"Who is gullible to political disinformation?": predicting susceptibility of university students to fake news	Journal of Information Technology and Politics	(Bringula et al., 2021)

FINDINGS

Information Literacy Box

Aligned with our previous findings, academic libraries practices remain a significant observation setting for the information literacy approach, although the absence of impact assessment persists. Regarding Chinese top universities, 42 academic libraries were examined to understand their information literacy education strategies during the COVID-19 pandemic. Within several information literacy contents, fake news, and misinformation were also considered. Through several online platforms, using recorded videos or live sessions, 14.3% of the

academic libraries “had taught mini-courses or given live lectures on how to identify false information. The number and scope of influence were not enough to stop the spread of misinformation”. One academic library “added a special session to their online information courses to discuss approaches on how to identify false information and misinformation about COVID-19. The discussion helped students learn scientific methods to search information and determine its true or false attributes, e.g. paying attention to where information originated, the wording used in the information, etc.” (Guo & Huang, 2021, p. 8). Despite some limitations, fake news was considered a core topic in the pandemic context. Materials like the IFLA infographic *How to Spot Fake News - COVID-19 Edition* provided relevant guidance to information literacy courses (IFLA, 2021).

A US example of online information literacy modules at the university level revealed a concern with information disorder issues and the complexity of current digital environments. Therefore, “the librarians included content on topics like biased algorithms and the importance of web literacy due to mis- and disinformation on the open web” (Peuler & Coltrain, 2020, p. 258). Still, in the higher education setting, a literature review published after our previous research (Revez & Corujo, 2021) confirmed several libraries practices against fake news already identified. The authors found two main practice categories: informal learning (library guides, information literacy courses, tutorials, etc.) and validated tools (checklist approaches - CRAAP, RADAR, SMART, SMELL, etc. – and infographics) (Antunes et al., 2021).

Information literacy instruction was also prominent in Nigerian federal universities libraries’ response during the COVID-19 pandemic. In a very pragmatic way, the authors state that “the involvement of librarians in combating COVID-19 in Nigeria is to a large extent, a marketing strategy that has the potentials to create public awareness of library resources and services and ultimately increase its patronage, as well as national and global visibility” (Pelemo et al., 2021, p. 5). The extent of the problem is seen in the massive use of *Whatsapp* digital social platform as an information source, although in competition with National Centre for Disease Control (Nigeria) and World Health Organization. The authors argue that libraries should engage more with health public authorities to convey credible information.

Relying on content analysis of websites and LibGuides of public universities in South Africa, a study found that providing credible information about the COVID-19 pandemic and remote information and media literacy instruction were the main strategies to fight fake news. The use of LibGuides is the most relevant mean of awareness creation about fake news, providing access and linking to popular tools like IFLA’s *How to spot fake news* and CRAAP (Bangani, 2021).

Regarding public libraries, a US study was based on an analysis of interviews and workshop discussions of public library staff from Washington State. Attempting to reveal empirical evidence of public libraries' role and successful impact against fake news, one of the major gaps identified in the literature that questions information literacy efficiency, the authors propose a research agenda to improve misinformation-related programming. Findings showed that public librarians are interested and have already implemented programs, but they face several barriers. More research is needed in three broad areas: "research into the most effective formats for misinformation programming; research into tools and training that can make librarians feel more confident in addressing misinformation as it emerges within their communities; and research into how to overcome political and economic barriers to misinformation programming". Media and information literacy instruction is considered insufficient by public librarians but remains unclear how it could be more effective: "media literacy-focused approaches to misinformation programming tend to appeal to community members who already have the skills to recognize misinformation" (Young et al., 2020, p. 5). Some alternatives suggested were community discussions about misinformation or panel discussions with experts, but more LIS research is needed to provide practitioners with effective strategies. Librarians also claim for more tools and training to address misinformation in their programming. Political and economic broader context has also to be considered in its relationship with library neutrality. In some conservative communities, librarians reported "that misinformation cultivated an us-versus-them mentality that could easily lead the public to viewing librarians as an enemy. They felt that misinformation programming would bring patrons to the library with feelings of pre-emptive rage, which would undermine their programming for everyone" (Young et al., 2020, p. 8). How can librarians fight misinformation without compromising communities' political standpoints? Media and information literacy should be improved, but partnering with political authorities, experts, and scholars is the road ahead against misinformation, even helping out public libraries on the impact evaluation issues.

Beyond Information Literacy

School libraries studies are new in this review and rare in LIS literature concerning the fake news phenomenon. Before higher education, students should be prepared not only to formulate a question and develop a line of

inquiry but to understand how their perception is strongly affected by cognitive issues. A US study pointed out the need to teach how students may recognize confirmation and implicit biases: "Teaching students the skills to unpack what they are seeing and reading will allow them to understand how their confirmation and implicit biases come into play and allow them to make informed decisions about what they see, hear, and read" (Mignardi & Sturge, 2021, p. 19). Several strategies could be used, including the use of CRAAP, lateral reading, and fact-checking websites. Most of all, it's important to go beyond traditional information literacy instruction and allow a self-awareness of information seeking and analysis behavior: "It is no longer enough to teach location and evaluation of resources. Instead, information literacy should be taught as a dynamic experience and process" (Mignardi & Sturge, 2021, p. 19).

A literature review was conducted by two US researchers who developed a disinformation behavior framework and model. Recognizing the limitations of LIS intervention in the fight against fake news, the authors propose the adoption of a creator and user perspective, along with some solutions, that theoretically include disinformation and misinformation in an information behavior model: "we may seem naive in our assumption that LIS can help to fight fake news in the ways we suggest in our framework. We have to understand that just having a framework or model is not the same as fighting fake news. There is a massive algorithmic multi-headed hydra out there in terms of the fake news phenomenon" (Agarwal & Alsaeedi, 2021, p. 654). Critical thinking and action are the routes to disrupt users' confirmation bias, reinforced in the social media platforms setting by the use of algorithms and bots. The concepts of filter bubble or echo chamber are key in the proposed framework, as the strategies to fight fake news mainly consist in puncturing it "through the concerted efforts and advocacy by individuals, groups, associations and organizations working on media literacy, LIS professionals teaching information literacy, and educators in schools, colleges and universities, as well as others, training people on critical thinking and critical action". More, it is proposed a serendipity test "to help people if the information that was forwarded to them, and lead to a surprise, was genuine, or presented before them to deceive them" (Agarwal & Alsaeedi, 2021, p. 652).

Another model was developed by US researchers, concerning the creation, and sharing of fake news. Seven factors were identified which may influence information users' choice to share or verify the information. The educational dimension, comprising critical thinking and information literacy, is only one of those factors, thus, relying on only one aspect would be probably insufficient to tackle misinformation spread: "One

wonders how realistic it is that librarians—traditionally the gatekeepers to and selectors of various types of information since the 19th century—could help alleviate such a widespread information problem that largely exists outside a library’s physical and conceptual boundaries” (Weiss et al., 2021, p. 2). Recognizing the overemphasize of information literacy relevance and the weak impact of one-time library instruction lessons, the authors defend that “a better alternative would be longer, more intensive credit-bearing courses” and rethink “how critical thinking in general, and information literacy in particular may be better employed to mitigate the propensity to share fake news while preserving the larger context” (Weiss et al., 2021, pp. 11–12). Multiple root causes of fake news demand a multidisciplinary approach.

Library materials and information sources collection appear in a secondary place among the strategies to fight fake news. A Philippines study of university students’ susceptibility to disinformation found that the library is the least used fact-checking resource. In contrast, Google is the most used source to verify information accuracy, followed by friends and family members: “internal (e.g., liking a post, sharing a post), external (e.g., seeking the opinion of experts), and technological factors (e.g., fake news exposure) could contribute positively or negatively to fake news susceptibility” (Bringula et al., 2021, p. 12). Different and parted information ecosystems – library vs. social media – might explain these results.

Grounded on the concept of epistemic injustice, a Canadian author considered people as “epistemic beings” (knowers, speakers, listeners, and informants) in contrast with the traditional user approach. Regarding the “operation of power in social relationships inherent in information creation, interactions, use, and dissemination”, “the underlying worldview of the user-centered paradigm (the person as a searcher, creator, or user of information) does not completely situate people socially and culturally at its center”. Reflecting on the example of fake news, which is seen as a form of epistemic injustice, harming the ability to know, traditional information literacy intervention is criticized, as it does not explore conveniently the concepts of cognitive authority and credibility. This would enable a “deeper questioning of why and how we find some people’s accounts, information, and communication more credible than others”. The recognition of social power among the fake news phenomenon may identify and name “its structural underpinnings as racist or misogynist rather than merely untrue or not factual because we can clearly see the epistemic harms inflicted” (Oliphant, 2021, pp. 959–960). Although not explicitly mention-

ing libraries practices, these arguments lay within the LIS field in a critical thinking approach.

Conspiracy theories were observed as one of the most serious attacks to objective truth during the COVID-19 pandemic (Beene & Greer, 2021). In the ethics domain, new demands are ahead of librarians. Researchers from the US and South Africa introduced “an ethical framework based on alethic rights—or rights to truth—as conceived by Italian philosopher Franca D’Agostini”. Although information and media literacy were the most prominent response to fake news, there is a “growing literature questioning the effectiveness of information literacy” (P. Lor et al., 2021, pp. 2, 6). Even on ideological grounds, there is a discussion around the ideas of library neutrality, freedom of access to any information, and hidden censorship, which may ultimately sustain *status quo* power relationships. In librarians’ responsibility informed by social ethics, truth emerges as a very complex concept to deal it. Are librarians able to determine what is truth? The authors point out that “there seems to be a basic assumption that we are entitled to the truth”, but “standard practices based on codes of ethics in LIS are mainly concerned with the right to documents, information, and (sometimes) knowledge—but not necessarily the truth”. More, it is unrealistic to support the right to information when “a great deal of information is potentially untruthful and harmful” (P. Lor et al., 2021, pp. 7–8). To support the value of truth “information hygiene should be inculcated among all citizens from the earliest age. Just as children are taught to brush their teeth daily and wash their hands after visiting the toilet, we should be teaching them not to believe everything they are told, to recognize trustworthy and untrustworthy sources of information, and not to repeat information”. However, “An alethic culture does not decide what truth is to be believed, but inculcates in members of the society a clear awareness of the use of truth to equip them with the means of disentangling what is true from what is dogmatically declared to be true” (P. Lor et al., 2021, pp. 10–11). This implicates a re-conception of librarians’ role regarding social justice through active support of common facts.

Out-of-IL Box

Stepping out of the information literacy box does not imply completely disrupting the connection between the educational mission of libraries and other strategies. Two Canadian researchers proposed to triangulate information literacy education “efforts with automation (*i.e.*,

developing and introducing assistive technologies to automatically detect various ‘fakes’ in the news) and regulation (*i.e.*, governmental restrictions and industry ‘pollution controls’ for news propagation media)” (Delellis & Rubin, 2020). Information literacy is conceptualized as a sociopolitical skill and information should be critically assessed as production of society. It’s no longer a matter of search and retrieval, as individuals are users and consumers, and socially influenced: “the ability to critically assess information has been paramount since commodification of information became a driving force in most economies” (Delellis & Rubin, 2020; see chapter included in Dalkir & Katz, 2020).

Digital libraries are a new arena to implement strategies against fake news. A Turkish study presented the development of an automated fake news detection system to be integrated into libraries’ digital systems: “a mathematical model that is trained using existing news content served by digital libraries, and capable of labelling news content as fake or valid with unprecedented accuracy” (Mertoğlu & Genç, 2020, p. 4). The authors highlight the urgency of collaborative studies between LIS and Computer Science communities, going beyond the traditional information literacy approach, focused on the patrons’ skills development: “the collaboration of LIS professionals, computer scientists, fact-checking organizations, and pioneering technology platforms is the key to provide qualified news within a real-time framework to promote information literacy” (Mertoğlu & Genç, 2020, p. 15). In the technological options available, the use of mobile apps was considered by a US researcher who assessed 12 news-related apps for medical, governmental, and political news, acknowledging the user’s role in evaluating news and the potential of these services to medical libraries (Becker, 2021).

Sharing the same values, public libraries and public service broadcasters were analyzed as “true” information organizations. Beyond professional expertise to assure information reliability, old and new partnerships should be formed to establish a front line against fake news. Focusing on the UK situation, public libraries supported the communities during the COVID-19 pandemic: “When the country went into lockdown, public libraries reacted quickly and users were soon accessing their reading in new ways, as they downloaded free e-Books and magazines to read online”. People expect librarians “to advise users about sources that can be trusted and those that cannot”. Nevertheless, the authors acknowledge the limitations of the programs about information searching skills or the belief that more or better information will be sufficient to tackle misinformation,

claiming that “information professionals need to work with colleagues from other disciplines and professions” (Usherwood & Usherwood, 2021, pp. 294–296). A collaborative strategy is depicted as essential not to engage libraries in the culture wars, but to protect the communities of their consequences.

Also proposing a multi-disciplinary approach, an Italian researcher highlights that the fake news phenomenon can’t be countered by a one solution perspective. Despite librarians traditionally dealing with published information, “ethical commitments make library and information specialists feel involved in the fake news and misinformation debate” (Fontanin, 2021, p. 174). Besides valuable collections and the Open (Access, Science, ...) movement, this engagement is mainly materialized in the contribution of media and information literacy, plus critical thinking skills instruction, thus, an instructional stance. How to maintain the quality of collections, without adopting forms of censorship? How to train patrons on information sources evaluation, disregarding confirmation biases and personal beliefs? These are serious dilemmas, but “no one can beat fake news alone and librarians are no exception; yet, it is definitely their task and ethical commitment to fight it, but not alone”. Therefore, “the commitment to dealing with the problem, to meeting other experts on common ground advocating for information awareness should not be questioned” (Fontanin, 2021, p. 176).

Categorization revisited

Revisiting the categorization grounded in the earlier literature analysis (Revez & Corujo, 2021), the intention is to frame again current research and assess its adaptability (Table 3). In other words, to test if the most recent literature can fit in the previous categories identified and validate the categorization previously produced. This categorization was already used in a Portuguese master dissertation with a successful outcome and only slighter modifications (Carrusca, 2021).

All the main categories intend to represent a principal, but not exclusive, focus: ‘Source evaluation’ represents strategies focused on the information source; ‘Information literacy’ represents strategies focused on individual patrons; ‘Dissemination’ represents strategies focused on library audiences; ‘Out-of-IL-box’ represents strategies that intend to overcome information literacy weaknesses. Literature reviews were excluded from this categorization (e.g., ID 3).

Table 3 - Categorization of library practices against fake news, as evidenced in the literature (adapted from Revez & Corujo, 2021)

Library practices against fake news			ID [Table 2]
Source Evaluation	Checklist approach	CRAAP (Currency, Relevance, Authority, Accuracy, and Purpose)	2; 13
		RADAR (Rationale, Authority, Date, Accuracy, Relevance)	N/A
		IFLA infographic 'How to Spot Fake News'	8; 13
	Other techniques	Lateral reading	2; 17
		IF I APPLY method	N/A
Information Literacy	Library materials	Library guides (including fact-checking resources)	2; 13
	Formal instruction	Classroom or online instruction	4; 7; 8; 12; 13; 14; 15
	Other approaches	Discussion-based approach engaging critical thinking skills	2; 4; 6; 10; 11; 14
Dissemination	Audio-visual	Memes and infographics	N/A
		Audio-visual activities, like YouTube videos	8
	Public events	Panels and partnerships with journalists, or other experts	14
	Social media	Social media campaigns	N/A
Out-of-IL-Box	New and old partnerships	Partnerships with other players such as educators, journalists, media, publishers, scholars, ...	5; 9; 14; 15
	Technological route	Technological solutions to identify false information	1; 10; 16

These findings suggest a prevalence of information literacy formal instruction and other related approaches, mainly concerning the development of critical thinking skills. In this update, there is an increase in the literature referring to out-of-IL-box strategies. In general, these results are aligned with our previous research.

In the weeks after the analyzed retrieval, more publications on this subject have entered the public sphere. One defended the right of people to be misinformed, demanding information professionals to “shift our pedagogical approach to community-focused metaliteracy skills and hope that our students and patrons acquire the necessary skills to make their own informed decisions about the news they consume” (Cooke, 2021, p. 56). Another discussed the relevance of critical information literacy to librarians’ training and the disruption of library neutrality (Jaeger & Taylor, 2021). In the same line of inquiry, a third one argued that the adoption of political information literacy implicates that information professionals should not remain neutral in face of disinformation phenomena, but tackle the cognitive factors which fuel it (Singh & Brinster, 2021). The theme persists and will persist within LIS literature.

DISCUSSION

The studies analyzed confirmed previous findings (Revez & Corujo, 2021) and evidenced the progress and obstacles of libraries’ role in the fight against fake news. First of all, the impact assessment remains generally absent. This undermines the credibility of libraries’ intentions and projects to counteract infodemic (World Health Organization, 2020). Some authors refer to the need for a close partnership with academia to help in the development of tools and methods to assess information literacy strategies against the information disorder scenario (Wardle & Derakhshan, 2017).

For many libraries, the COVID-19 pandemic was a trigger and an alert to the disinformation phenomena. Several institutions opted to include pandemic-related content in their instructional materials, including content regarding fake news. Libraries also acknowledged the need to connect with local health authorities, especially to convey accurate information during the health crisis. Information accuracy was also a major preoccupation of international organizations (World Health Organization, 2021).

The literature evidenced a debate about library neutrality. Libraries are called into action against disinformation and misinformation, but they face a dilemma. Their neutral position is fragile in face of different political positions and the polarization of communities (Zimdars & Mcleod, 2020). Being a connector and assuming a neutral role is becoming more difficult every day. Therefore, a large discussion about information ethics and the value of truth is ongoing (Cooke, 2018).

The limitations of information literacy instruction are depicted in several studies, and there is a general agreement that critical thinking abilities and the awareness of the cognitive factor affecting (dis)information behavior should be considered (Sullivan, 2019a, 2019b). Broad development of information literacy programming is required, including new target audiences, like K-12 students. Some disinformation-related models were presented, which revealed the limitations of considering information literacy instruction as the only solution. More, libraries' information ecosystem is mostly ignored in fact-checking issues.

Information literacy strategies are central in libraries' response to fake news, but other roads are ahead, like automatic devices, fake news detection systems, and fact-checking mobile apps. Libraries' collection of accurate information resources is also essential, but the most important aspect relates to a partnering stance and a collaborative attitude that librarians should assume. Excessive self-confidence in libraries' capacity to tackle the fake news phenomenon could be counterproductive. Engaging with scholars, media experts, health professionals, and other stakeholders, is the only way to perform a relevant role. New solutions need to be explored and old methods need to be reassessed.

CONCLUSION

This article intended to carry out a systematic review of the literature to identify the most recent library practices against fake news. After the data extraction, a final set of 17 documents was analyzed.

The current debate is still around information literacy strategies that intend to reiterate an authority-based source evaluation versus the challenge to recognize an emotional-based reaction to fake news in a post-truth world. The role of libraries is cornered in an instructional framework, while disinformation is pervasive in several information ecosystems. The role of libraries in a Post-truth society is still an open debate, yet there is almost a consensus that libraries should engage in partnerships and be part of a multidisciplinary approach.

Both research questions were positively answered, and the categorization was reused with success. The main limitation of this study concerns information retrieval, as it was adopted the same search expression of previous research, but those search terms could have been expanded to include different information disorder-related concepts. Future research should develop new search strategies and promote diversification of the information retrieval terms.

REFERENCES

- Affelt, A. (2019). All That's Not Fit to Print: Fake News and the Call to Action for Librarians and Information Professionals. Emerald.
- Agarwal, N. K., & Alsaeedi, F. (2021). Creation, dissemination and mitigation: Toward a disinformation behavior framework and model. *Aslib Journal of Information Management*, 73(5), 639–658. <https://doi.org/10.1108/AJIM-01-2021-0034>
- Agosto, D. E. (Ed.). (2018). Information literacy and libraries in the age of fake news. Libraries Unlimited.
- Anstead, N. (2021). What Do We Know and What Should We Do About Fake News? Sage.
- Antunes, M. L., Lopes, C., & Sanches, T. (2021). Como combater as fake news através da literacia da informação? Desafios e estratégias formativas no ensino superior. *BiD*, 46. <https://doi.org/10.1344/BID2020.46.15>
- Bangani, S. (2021). The fake news wave: Academic libraries' battle against misinformation during COVID-19. *Journal of Academic Librarianship*, 47(5). <https://doi.org/10.1016/j.acalib.2021.102390>
- Becker, D. A. (2021). Using Mobile Apps to Combat Fake News. *Journal of Electronic Resources in Medical Libraries*, 18(1), 55–60. <https://doi.org/10.1080/15424065.2021.1887787>
- Beene, S., & Greer, K. (2021). A call to action for librarians: Countering conspiracy theories in the age of QAnon. *The Journal of Academic Librarianship*, 47(1), 102292. <https://doi.org/10.1016/j.acalib.2020.102292>
- Bringula, R. P., Catacutan-Bangit, A. E., Garcia, M. B., Gonzales, J. P. S., & Valderama, A. M. C. (2021). "Who is gullible to political disinformation?": Predicting susceptibility of university students to fake news. *Journal of Information Technology and Politics*. <https://doi.org/10.1080/19331681.2021.1945988>
- Buschman, J. (2019). Good news, bad news, and fake news: Going beyond political literacy to democracy and libraries. *Journal of Documentation*, 75(1), 213–228. <https://doi.org/10.1108/JD-05-2018-0074>
- Carrusca, M. F. C. (2021). *O Combate à desinformação: Qual o papel das Bibliotecas?* [Dissertação de Mestrado]. Universidade Nova de Lisboa, Faculdade de Ciências Sociais e Humanas, NOVA IMS Information Management School.
- Cooke, N. A. (2018). Fake news and alternative facts: Information literacy in a post-truth era. ALA Editions.
- Cooke, N. A. (2021). A Right to be Misinformed? Considering Fake News as a Form of Information Poverty. In N. G. Taylor, K. Kettnich, U. Gorham, & P. T. Jaeger (Eds.), *Libraries and the Global Retreat of Democracy: Confronting Polarization, Misinformation, and Suppression* (Vol. 50: 45–60). Emerald Publishing Limited. <https://doi.org/10.1108/S0065-283020210000050002>
- Cosentino, G. (2020). Social Media and the Post-Truth World Order: The Global Dynamics of Disinformation. Palgrave Pivot.
- Dalkir, K., & Katz, R. (Eds.). (2020). Navigating Fake News, Alternative Facts, and Misinformation in a Post-Truth World. Information Science Reference.
- De Paor, S., & Heravi, B. (2020). Information literacy and fake news: How the field of librarianship can help combat the epidemic of fake news. *The Journal of Academic Librarianship*, 46(5), 102218. <https://doi.org/10.1016/j.acalib.2020.102218>

- Delellis, N. S., & Rubin, V. L. (2020). Optimizing Library Services—Voter Fraud, COVID-19 #VaccinesKill, and Social Media Censoring: How Librarians and Educators Can Combat Fake News and Misinformation. *Against the Grain*, 32(6), 55–57. <https://www.charleston-hub.com/2021/02/v326-optimizing-library-services-voter-fraud-covid-19-vaccineskill-and-social-media-censoring-how-librarians-and-educators-can-combat-fake-news-and-misinformation/>
- Egelhofer, J. L., & Lecheler, S. (2019). Fake news as a two-dimensional phenomenon: A framework and research agenda. *Annals of the International Communication Association*, 43(2), 97–116. <https://doi.org/10.1080/23808985.2019.1602782>
- Fallis, D. (2015). What Is Disinformation? *Library Trends*, 63(3), 401–426. <https://doi.org/10.1353/lib.2015.0014>
- Fontanin, M. (2021). On fake news, gatekeepers and LIS professionals: The finger or the moon? *Digital Library Perspectives*, 37(2), 168–178. <https://doi.org/10.1108/DLP-09-2020-0097>
- Fuller, S. (2018). *Post-Truth: Knowledge as a Power Game*. Anthem Press.
- Guo, J., & Huang, J. (2021). Information literacy education during the pandemic: The cases of academic libraries in Chinese top universities. *Journal of Academic Librarianship*, 47(4). <https://doi.org/10.1016/j.acalib.2021.102363>
- IFLA. (2021). *How to Spot Fake News—COVID-19 Edition*. <https://repository.ifla.org/handle/123456789/1289>
- Jaeger, T., & Taylor, N. G. (2021). Raking the Forests: Information Literacy, Political Polarization, Fake News, and the Educational Roles of Librarians. In N. G. Taylor, K. Kettlich, U. Gorham, & P. T. Jaeger (Eds.), *Libraries and the Global Retreat of Democracy: Confronting Polarization, Misinformation, and Suppression* (Vol. 50: 211–224). Emerald Publishing Limited. <https://doi.org/10.1108/S0065-283020210000050009>
- Kitchenham, B. (2004). *Procedures for Performing Systematic Reviews*. Keele University. <http://www.inf.ufsc.br/~aldo.vw/kitchenham.pdf>
- Lim, S. (2020). Academic library guides for tackling fake news: A content analysis. *The Journal of Academic Librarianship*, 46(5), 102195. <https://doi.org/10.1016/j.acalib.2020.102195>
- Lor, P. J. (2018). Democracy, information, and libraries in a time of post-truth discourse. *Library Management*, 39(5), 307–321. <https://doi.org/10.1108/LM-06-2017-0061>
- Lor, P., Wiles, B., & Britz, J. (2021). Re-thinking Information Ethics: Truth, conspiracy theories, and librarians in the Covid-19 era. *Libri*, 71(1), 1–14. <https://doi.org/10.1515/libri-2020-0158>
- McIntyre, L. C. (2018). *Post-truth*. MIT Press.
- Mertoğlu, U., & Genç, B. (2020). Automated fake news detection in the age of digital libraries. *Information Technology and Libraries*, 39(4). <https://doi.org/10.6017/ITAL.V39I4.12483>
- Mignardi, D., & Sturge, J. (2021). Check your bias at the school library door: The power of the school librarian in an evolving information landscape. In *Hope and a Future: Perspectives on the Impact that Librarians and Libraries Have on our World* (pp. 13–22). Emerald. <https://doi.org/10.1108/S0065-283020210000048002>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLOS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- Oliphant, T. (2021). Emerging (information) realities and epistemic injustice. *Journal of the Association for Information Science and Technology*. <https://doi.org/10.1002/asi.24461>
- Page, M. J., McKenzie, J. E., Bossuyt, M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J.,

- Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Pelemo, G. D., Horsfall, M. N., & Osedo, O. A. (2021). Roles of Librarians in Combating Misinformation on Corona Virus Disease (COVID-19). *Library Philosophy and Practice*, 2021, 1–22. <https://digitalcommons.unl.edu/libphilprac/5539>
- Peters, M. A., Rider, S., Hyvonen, M., & Besley, T. (Eds.). (2018). *Post-Truth, Fake News: Viral Modernity & Higher Education*. Springer.
- Peuler, M., & Coltrain, M. (2020). Flip this house!: Updating and designing an online First Year Seminar module series. *Journal of Library & Information Services in Distance Learning*, 14(3/4), 253–265. <https://doi.org/10.1080/1533290X.2021.1880527>
- Revez, J., & Corujo, L. (2021). Librarians against fake news: A systematic literature review of library practices (Jan. 2018–Sept. 2020). *The Journal of Academic Librarianship*, 47(2), 102304. <https://doi.org/10.1016/j.acalib.2020.102304>
- Singh, R., & Brinster, K. N. (2021). Fighting Fake News: The Cognitive Factors Impeding Political Information Literacy. In N. G. Taylor, K. Kettlich, U. Gorham, & P. T. Jaeger (Eds.), *Libraries and the Global Retreat of Democracy: Confronting Polarization, Misinformation, and Suppression* (Vol. 50: 109–131). Emerald Publishing Limited. <https://doi.org/10.1108/S0065-283020210000050005>
- Søe, S. O. (2021). A unified account of information, misinformation, and disinformation. *Synthese*, 198(6), 5929–5949. <https://doi.org/10.1007/s11229-019-02444-x>
- Sullivan, M. (2019a). Libraries and Fake News: What's the Problem? What's the Plan? *Communications in Information Literacy*, 13(1), 91–113. <https://doi.org/10.15760/comminfolit.2019.13.1.7>
- Sullivan, M. (2019b). Leveraging library trust to combat misinformation on social media. *Library & Information Science Research*, 41(1), 2–10. <https://doi.org/10.1016/j.lisr.2019.02.004>
- Usherwood, B., & Usherwood, M. (2021). Culture wars, libraries and the BBC. *Library Management*, 42(4–5), 291–301. <https://doi.org/10.1108/LM-12-2020-0175>
- Wardle, C., & Derakhshan, H. (2017). *Information Disorder: Toward an interdisciplinary framework for research and policymaking*. Council of Europe,. <https://rm.coe.int/information-disorder-toward-an-interdisciplinary-framework-for-research/168076277c>
- Weiss, A. P., Alwan, A., Garcia, E. P., & Kirakosian, A. T. (2021). Toward a comprehensive model of fake news: A new approach to examine the creation and sharing of false information. *Societies*, 11(3). <https://doi.org/10.3390/soc11030082>
- World Health Organization. (2020). *An ad hoc WHO technical consultation managing the COVID-19 infodemic: Call for action*. World Health Organization. <https://apps.who.int/iris/rest/bitstreams/1302999/retrieve>
- World Health Organization. (2021). *Let's flatten the infodemic curve*. <https://www.who.int/news-room/spotlight/let-s-flatten-the-infodemic-curve>
- Young, J. C., Boyd, B., Yefimova, K., Wedlake, S., Coward, C., & Hapel, R. (2020). The role of libraries in misinformation programming: A research agenda. *Journal of Librarianship and Information Science*. <https://doi.org/10.1177/0961000620966650>
- Zimdars, M., & McLeod, K. (Eds.). (2020). *Fake News: Understanding Media and Misinformation in the Digital Age*. MIT Press.

