

Original article

Library Interventions Against Misinformation and Deepfakes: A PRISMA 2020 Systematic Review (2020–2025)

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Citation: Purkayastha, N., Barman, B., Saikia, N. (2025). Library Interventions Against Misinformation and Deepfakes: A PRISMA 2020 Systematic Review (2020–2025). *Journal of Intellectuals*, 5(1), 55-65. Retrieved from <https://journals.bahonacollege.edu.in/index.php/joi/article/view/joi2025-5-1-7>

Received: 5 August, 2025

Revised: 10 October, 2025

Accepted: 07 November, 2025

Published: 25 December, 2025

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Abstract: This systematic review synthesizes recent studies on librarian-led interventions against disinformation and deepfakes. Following PRISMA 2020, articles were retrieved from Google Scholar and Semantic Scholar using terms related to libraries/librarians, misinformation/disinformation, deepfakes/synthetic media, and digital/media/information literacy. A total of 394 research studies is retrieved combining both the databases and after through screening n = 12 are included in the study. Findings show libraries primarily depend on organized media and information literacy programs, digital resources that are scalable and self-learning and crisis-focused solutions such as health infodemics. The available research highlights the necessity to combine data and artificial intelligence literacy with verification training despite the lack of deepfake-specific treatments there are major detection concerns and viewer distortions and the main drawbacks include unequal review procedures; ambiguous result measures and lack of personnel capacity and in addition, the investigation proposed a training program for librarian, LTF-ADL to be used as a feasible route to workforce preparation and suggests further research employing validated tests, observational research techniques, and training framework pilot testing.

Keywords: Disinformation, Deepfakes, Information Literacy, Libraries, Media Literacy, Misinformation, PRISMA 2020, Synthetic Media.

1. Introduction

Risks to civic dialogue, informed decision-making and public trust have increased due to the quick spread of false information and the emergence of deepfakes because they can

seem realistic regardless of whether viewers are unsure of authenticity. The AI or computer-generated deepfakes and

audio-visual media complicate verification (Hameleers et al., 2023). During times of crisis, platform dynamics magnify misinformation highlighting the necessity of scalable information literacy efforts and reliable mediators and in response, libraries particularly public and academic libraries have increased their outreach and instructional responsibilities centred on access to trustworthy materials, critical evaluation, and verification practices (Bangani, 2021; Herrero-Diz & López-Rufino, 2021); educational workshops, multimedia resources and information literacy training that teach people how to assess sources, recognise manipulation cues and limit uncritical sharing are examples of library interventions against misinformation that are increasingly being framed as civic and educational work (Hanz & Kingsland, 2020; De Paor & Heravi, 2020). The deepfake danger forces libraries to move toward another competency frontier artificial intelligence/data literacy and synthetic media reasoning and to help audiences avoid faulty assumptions based on fake news (Hameleers et al., 2023). Despite the growing interest in libraries' reactions to disinformation Key gaps still exist; while deepfake/synthetic multimedia content is scarce and poorly acknowledged the majority of interventions continue to focus on broad fake news and information literacy (De Paor & Heravi, 2020; Herrero-Diz & López-Rufino, 2021). Since many programmes lack long- term follow-up and systematic assessment, it is difficult to evaluate or reproduce their efficacy (Goodsett, 2023; McGrew & Kohnen, 2024) and the public continues to struggle with identifying distorted media according to deepfake research, although this is not always reflected in library ready education (Hameleers et al., 2023; McCosker, 2022). Lastly, librarians still need scalable AI/data literacy training and job preparedness, particularly in low-resource settings (Bangani, 2021; Haque et al., 2024). Therefore, in order to satisfy the growing demands for AI-deepfake literacy this systematic review summarises peer-reviewed research on library interventions addressing disinformation and deepfakes from 2020 to 2025 and suggests a structured Librarian Training Framework for AI-Deepfake Literacy (LTF- ADL), a training pathway to strengthen capacity, evaluation, and scalability.

2. Objectives

- To find research (2020–2025) on library interventions that deal with deepfakes and false information.
- To provide an overview of the primary results that have been reported, highlighting both the unclear and the apparent results.
- To draw attention to common issues and shortcomings with existing solutions (such as scalability, inadequate evaluation, and training requirements).
- To provide a useful framework for librarian training in AI-deepfake literacy based on the compiled data

3. Research Methodology

In accordance with PRISMA 2020 guidelines, this review used an appropriate query that combined library terms with misinformation/deepfake and literacy keywords to search Google Scholar and Semantic Scholar for articles ($n = 12$) from peer-reviewed journals published between January 2020 and December 2025: ("library" OR "librarian*") AND ("misinformation" OR "disinformation" OR "fake news") AND ("deepfake*" OR "synthetic media") AND ("information literacy" OR "media literacy" OR "digital literacy" OR "AI literacy" OR "data literacy"). Peer-reviewed journal articles (empirical, reviews, case studies, or rapid reviews) that addressed misinformation/disinformation and/or synthetic media through literacy or verification education and were published in libraries or by librarians were eligible. Non-peer-reviewed sources, conference abstracts, editorials/opinion pieces, non-library interventions, publications published outside of 2020–2025, and non-English items were not included. Title/abstract screening was followed by full-text review; records were excluded at the full-text stage mainly because they did not have a library emphasis, had no intervention component, were outside the time window, or lacked enough methodological detail for extraction. Figure 1 clearly depicted the PRISM flow adopted for the presented study.

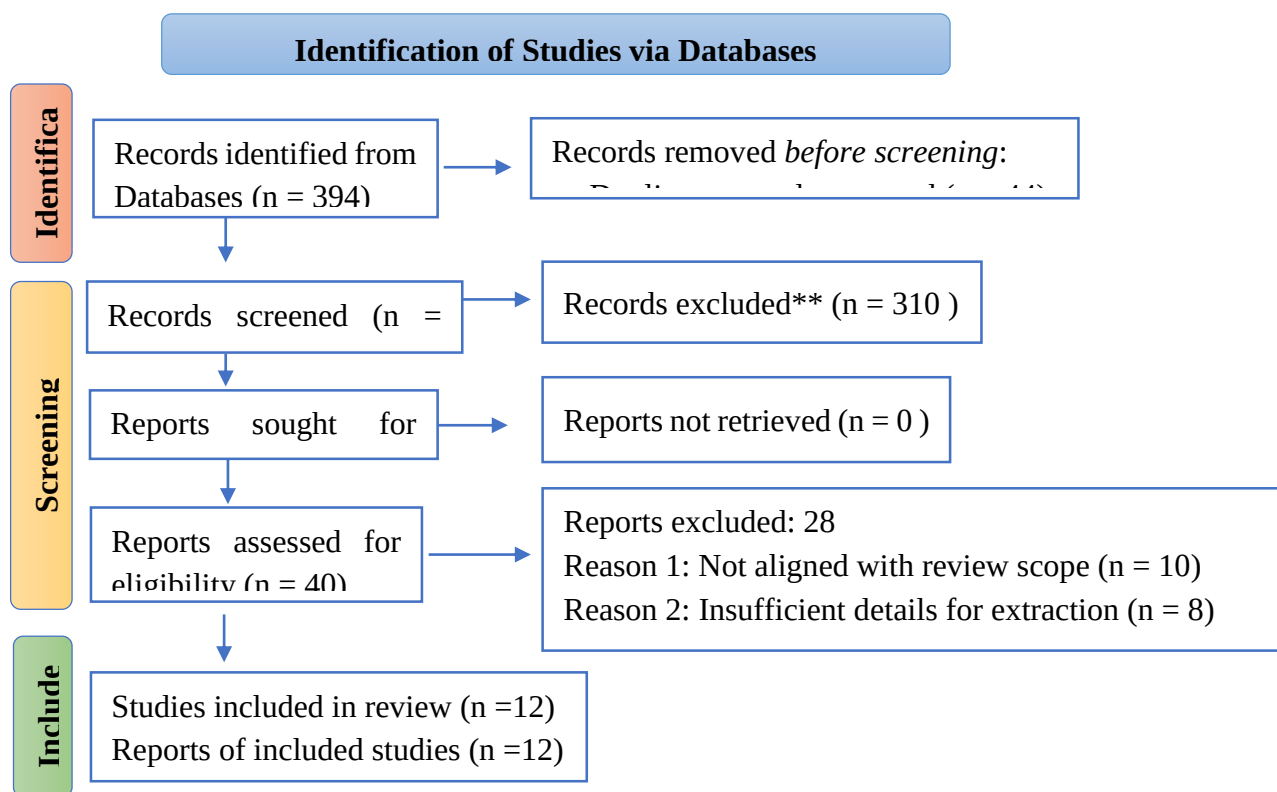


Figure 1: PRISMA 2020 Flow Diagram

4. Results

Descriptive Summary of Included Studies

Table 1: Descriptive Summary of Included Studies (2020–2025)

No.	Study	Primary Focus	Intervention/Contribution	Key Takeaway
1	De Paor & Heravi (2020)	IL + fake news in librarianship	Literature review of library initiatives	Libraries combat fake news through IL frameworks and community education; it calls for strengthening roles and practices.
2	Hanz & Kingsland (2020)	Fake news workshop	Multi-audience workshop model (19 offerings)	Workshop-based IL is adaptable across audiences; it highlights that exposure to digital media alone is insufficient for evaluation skills.
3	Bangani (2021)	Academic libraries vs. COVID-19 misinformation	Qualitative evidence of academic library responses	Academic libraries contribute through awareness, credible information provision, collection development, and research support during crises.
4	Herrero-Diz & López-Rufino (2021)	Libraries' online anti-disinformation practices	Global analysis of library practices (N=216 libraries)	Libraries deploy online seminars, tutorials, and repositories; open-access self-learning resources and fact-checking skills are prominent.
5	"Infodemic, disinformation and fake news" (2022)	Library practices against fake news	Systematic review and categorisation	Practices cluster around IL instruction and partnerships; debate persists on authority-based evaluation vs. emotional response dynamics in post-truth contexts.
6	McCosker (2022)	Deepfakes + AI/data literacy	AI/data literacy framework (social learning sites)	Deepfake harms require AI/data literacy and identify intervention sites/methods for literacy-building around deepfake cultures of production.
7	Dehghani & Harris (2023)	Health library mis/disinformation	Rapid literature review	Health sciences librarians have a responsibility to counter mis/disinformation

				via credible resources and health information literacy.
8	Goodsett (2023)	Applying misinformation interventions to library IL	Narrative review (prebunking/debunking)	Prebunking/debunking and evidence-based interventions can be integrated into library instruction and outreach.
9	Hameleers et al. (2023)	Political deepfakes + audience doubt	Experimental insights relevant to literacy design	People struggle to distinguish deepfakes from authentic videos; literacy should target accurate verification skills, not just “glitch spotting”.
10	McGrew & Kohnen (2024)	Online information literacy to tackle misinformation	Structural/contextual considerations	Educational approaches vary; deeper online IL may be needed beyond lightweight prompts and labels to shift evaluation behaviour.
11	Haque et al. (2024)	IL factors preventing fake news (libraries in developing countries)	Survey-based library context	Highlights librarian roles, IL competency levels, and challenges in dealing with fake news in resource-constrained settings.
12	Aissing (2024)	University libraries + disinformation	Tools/strategies + role framing	Emphasises detecting/debunking strategies and the centrality of university libraries in strengthening information literacy.

Thematic Synthesis

Across the included studies, six themes emerged, with a seventh theme added to explicitly bridge the synthesis to the proposed training framework presented in table-2.

Table 2: Thematic synthesis

Sl No.	Theme	Description
1	Instruction-centred interventions dominate	Fake news and misinformation responses most commonly take the form of information/media literacy instruction, workshops, and structured teaching models (De Paor & Heravi, 2020; Hanz & Kingsland, 2020; Aissing, 2024).

2	Scalable online practices are increasingly central	Libraries deploy tutorials, repositories, and online seminars to reach broader audiences, especially visible in cross-library analyses (Herrero-Diz & López-Rufino, 2021).
3	Crisis contexts intensify the library's credibility role	Pandemic-related infodemics highlight libraries as credible information nodes supporting research and public-facing guidance (Bangani, 2021; Dehghani & Harris, 2023).
4	Partnerships are repeatedly recommended	Reviews emphasise multi-sector approaches and partnerships as essential because mis/disinformation permeates multiple information ecosystems ("Infodemic, disinformation and fake news," 2022).
5	Evaluation remains under-developed	Many interventions describe activities clearly but report limited standardized, longitudinal outcome measures, constraining comparability and scalability (McGrew & Kohnen, 2024).
6	Deepfake-specific education is emerging but not yet mainstream in libraries	Deepfake research highlights detection difficulty and the need for verification skill-building that goes beyond surface cues (Hameleers et al., 2023) and supports AI/data literacy development (McCosker, 2022).
7	Workforce capacity is a persistent bottleneck	Across contexts, studies imply (and sometimes explicitly state) that librarian competencies and training shape the feasibility and quality of interventions—especially in resource-constrained settings (Haque et al., 2024) and rapidly evolving threat environments (McCosker, 2022).

5. Discussion

According to this review, libraries mainly combat misinformation by implementing instruction-heavy interventions such as workshops, online learning resources, and embedded information literacy sessions; these interventions are frequently framed within well-established information literacy concepts while adjusting to rapidly

evolving technological platforms (De Paor & Heravi, 2020; Hanz & Kingsland, 2020). Globally, libraries are also implementing scalable online strategies such as repositories and self-learning materials that prioritise critical thinking and fact-checking (Herrero-Diz & López-Rufino, 2021); also libraries have a more important role in times of crisis, serving as credibility anchors that facilitate research processes and offer trustworthy information in the face of rapidly spreading false information (Bangani, 2021; Dehghani & Harris, 2023).

What Changes When the Threat Includes Deepfakes?

The issue of misinformation is expanded by deepfakes from the assessment of sources to the assessment of synthetic authenticity. According to experimental data, viewers may relate their scepticism to content validity rather than technical artifacts and struggle to discern between deepfakes and real videos (Hameleers et al., 2023). This directly affects libraries: instead, then teaching verification as a cursory "spot the glitch" exercise, interventions should teach it as a reasoning process (context, provenance, cross-checking). Simultaneously, since functional verification ability increasingly includes knowledge of generative mechanisms and data practices, deepfake damages and production cultures introduce a new literacy requirement: AI/data literacy (McCosker, 2022).

Integrating the Training Framework into the Evidence Story

The synthesis's main practical significance is that librarian expertise serves as the conduit for deepfake interventions and false information, making workforce readiness an essential requirement rather than an optional extra; inequalities in assessment ability and preparedness for emerging AI-driven risks, however, are consistently noted in the literature (McGrew & Kohnen, 2024; McCosker, 2022). The Librarian Training Framework for AI-Deepfake Literacy (LTF-ADL) is therefore not positioned in this review as an external addition; rather, it is a direct reaction to the patterns of evidence found. The LTF-ADL framework lays forth a plan for libraries to transition from ad hoc projects to long-term capacity building; the framework adopts a three-phase design approach. The first phase involves design: designing modular training plans that librarians can give by including evidence-based intervention techniques, such as prebunking/debunking integration into information literacy; second, evaluate: incorporate useful measures into training and instruction to close the reported evaluation gap (McGrew & Kohnen, 2024) and finally, refine: adjust training to local audiences and limits, taking into account the context variations observed in crisis and developing-country situations (Haque et al., 2024; Bangani, 2021), as shown in figure 2.

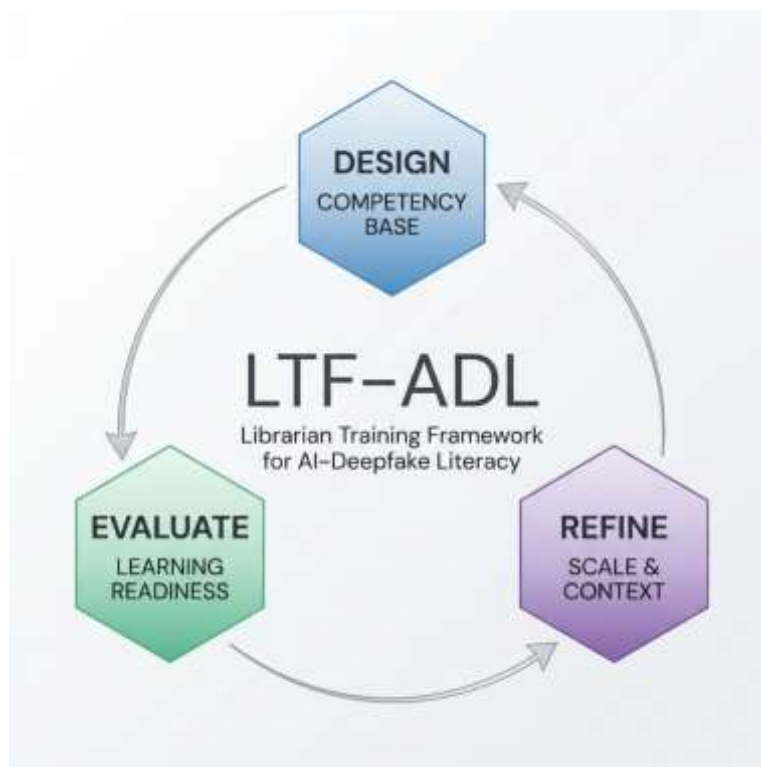


Figure 2: Three Phases of LTF-ADL

Proposed Librarian Training Framework for AI-Deepfake Literacy (LTF-ADL)

A Librarian Training Framework for AI-Deepfake Literacy (LTF-ADL) was created as an applied, practice-orientated approach to fill in the training and assessment gaps found in the examined studies, illustrated in figure 2. Building basic AI/data and validation expertise; testing learning and deployment readiness through quantifiable evaluations and regularly improving the program for various library scenarios and resource levels are all accomplished by the framework using an iterative **Design ▶ Evaluate ▶ Refine** cycle; as deepfake methods and verification tools advance the feedback loop facilitates continuous changes. In order to connect library instruction techniques with the deepfake-specific obstacle of detection difficulties and inadequate audience judgment, the framework purposefully bridges the gap between general misinformation literacy, which is prevalent in library studies, and AI/deepfake literacy, which is growing in broader media study.

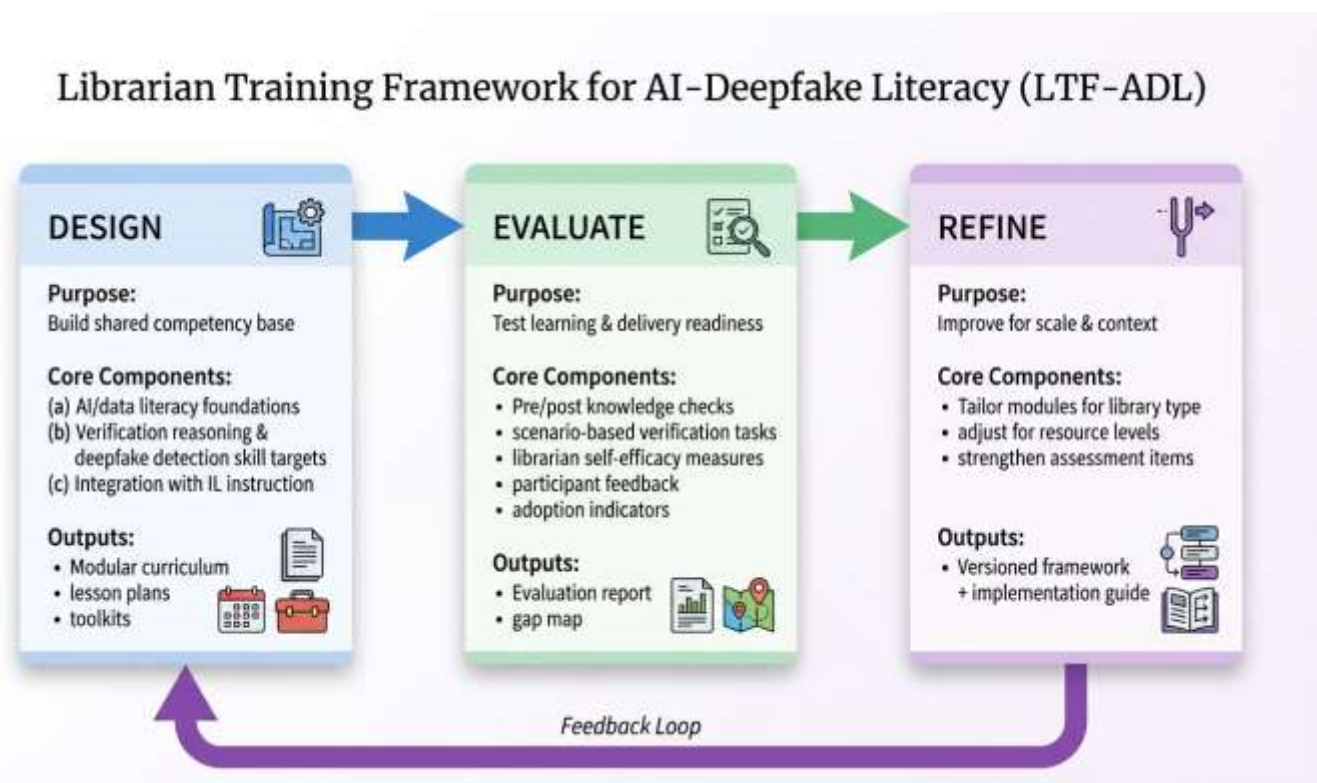


Figure 3: Librarian Training Framework for AI-Deepfake Literacy (LTF-ADL)

6. Limitations of the Review

There is yet little evidence of library interventions unique to deepfakes, while deepfake investigations are more frequently found in media-related scholarship, a large portion of library literature concentrates on disinformation in general; this limits the conclusions that can be drawn specifically about deepfakes in library contexts (McCosker, 2024; Hameleers et al., 2023). Several studies outline therapies, but they don't offer many longitudinal or standard outcome measures (McGrew & Kohnen, 2024); although they are removed to maintain methodological consistency, pertinent library practice reports, toolkits, and professional guidelines that have an impact on real-world implementation may be missed due to the scope restriction to peer-reviewed journal papers. The suggested training framework is supported by evidence it has not yet been empirically verified as a comprehensive model in library organizations; it ought to be viewed as a systematic design proposal that has to be tested and improved in a variety of library settings.

7. Conclusion

Via workshops, teaching, online learning materials, and emergency-related information support, libraries became more active misinformation intervention hubs between 2020 and 2025 (Bangani, 2021; Herrero-Diz & López-Rufino, 2021); although the evidence base highlights scalable online resources and instruction-first strategies, it also identifies ongoing deficiencies in evaluation and common measures. Deepfake research confirms that verification education should focus on reasoning processes and detection difficulty rather than surface-level clues (Hameleers et al., 2023), and that AI/data literacy is becoming essential to disinformation resilience (McCosker, 2024) as synthetic media hazards increase. This investigation links the findings to a feasible approach for library systems by incorporating an applied Librarian Training Framework for AI-Deepfake Literacy (LTF-ADL) that formally establishes design ► assess ► refine cycles for workforce preparedness. In order to examine long-term effects on confirmation and sharing behaviour, future research should develop uniform evaluation measures, conduct longitudinal studies, and evaluate and validate the LTF-ADL framework across library environments. Additionally, it should create teaching tailored to deepfakes, make sure that modifications for limited resource contexts are equity-focused, and evaluate cross-sector collaborations that extend interventions beyond one-time workshops.

References

1. Aissing, A. (2024). Detecting and Debunking Disinformation: The Role of University Libraries in Promoting Information Literacy. *Contemporary Mediterranean*, 3(1), 35–47. <https://doi.org/10.17818/SM/2023/1.3>.
2. Bangani, S. (2021). The fake news wave: Academic libraries' battle against misinformation during COVID-19. *The Journal of Academic Librarianship*, 47(5), 102390. <https://doi.org/10.1016/j.acalib.2021.102390>.
3. 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>
4. Dehghani, M., & Harris, L. (2023). Current issues and status of mis/disinformation in the health library context: A rapid literature review. *Journal of Health Information and Libraries Australasia*, 4(3), 9–25. <https://doi.org/10.55999/johila.v4i3.173>
5. Goodsett, M. (2023). Applying Misinformation Interventions to Library Instruction and Outreach. *Journal of New Librarianship*, 8(2), 78–112. <https://doi.org/10.33011/newlibs/14/9>.

6. Hameleers, M., van der Meer, T. G. L. A., & Dobber, T. (2023). They Would Never Say Anything Like This! Reasons to Doubt Political Deepfakes. *European Journal of Communication*, 39(1), 56–70. <https://doi.org/10.1177/02673231231184703>.
7. Hanz, K., & Kingsland, E. S. (2020). Fake or for real? A fake news workshop. *Reference Services Review*, 48(1), 91–112. <https://doi.org/10.1108/RSR-09-2019-0064>.
8. Haque, R., Senathirajah, A. R. bin S., Qazi, S. Z., Afrin, N., Ahmed, M. N., & Khalil, M. I. (2024). Factors of Information Literacy Preventing Fake News: A Case Study of Libraries in Developing Countries. *International Journal of Religion*, 5(7), 804–817. <https://doi.org/10.61707/vqbfpj15>.
9. Herrero-Diz, P., & López-Rufino, C. (2021). Libraries Fight Disinformation: An Analysis of Online Practices to Help Users' Generations in Spotting Fake News. *Societies*, 11(4). <https://doi.org/10.3390/soc11040133>.
10. McCosker, A. (2024). Making sense of deepfakes: Socializing AI and building data literacy on GitHub and YouTube. *New Media & Society*, 26(5), 2786–2803. <https://doi.org/10.1177/14614448221093943>.
11. McGrew, S., & Kohnen, A. M. (2024). Tackling misinformation through online information literacy: Structural and contextual considerations. *Journal of Research on Technology in Education*, 56(1), 1–6. <https://doi.org/10.1080/15391523.2023.2280385>.
12. Revez, J., & Corujo, L. (2022). Infodemic, disinformation and fake news: The role of libraries in Post-Truth Society. *Boletim Do Arquivo Da Universidade de Coimbra*, (extra 1), 31–53. https://doi.org/10.14195/2182-7974_extra2022_1_2.