

Libraries as Frontline Defenders Against Disinformation Warfare: Fact or Fiction?

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Abstract: The spread of disinformation in the digital age is an unprecedented threat to democratic governance, public health, and social cohesion. Libraries are increasingly becoming the main bulwark against false and misleading information. This paper examines the evolving role of public, academic and school libraries in the fight against disinformation, drawing on research from library and information science, media literacy studies, information warfare and epistemology. Adopting a critical narrative literature review design, the paper synthesises peer-reviewed and grey literature published between 2018 and 2026 around an explicit thematic framework rather than a systematic search protocol. It analyses library strategies and the challenges they face, including resource constraints, political sensitivities, educational shortcomings, and tensions between intellectual freedom and tackling disinformation. Drawing on epistemic justice and the cybersecurity principle of defence-in-depth, the paper argues that libraries are not called upon to determine the truth, but to facilitate the collective critical appraisal of information in the community, while functioning as one necessary but insufficient layer within a wider counter-disinformation ecosystem. The review shows that libraries contribute significantly to media and information literacy, civic participation, and community resilience but are still hampered by structural, technological and political constraints. The paper also finds that isolated interventions in libraries are not sufficient to counter large-scale disinformation ecosystems. The study contributes to the growing discourse on countering disinformation by proposing that libraries should be integrated into wider interdisciplinary and societal frameworks, including education, technology governance, public policy and initiatives on digital citizenship.

Keywords: Libraries, Disinformation, Misinformation, Information literacy, Fake news, Information warfare, Epistemic justice, Digital citizenship, Information equity

1. Introduction: The Epistemic Crisis and Libraries' Historical Role

The digital age has fundamentally altered the information landscape and has created an epistemic crisis characterised by the exponential spread of misinformation, disinformation and disinformation on social media platforms (Spitzberg, 2025). The consequences are serious: erosion of public trust in institutions, democratic processes compromised, delays in responding to public health, and the fracturing of social cohesion. Misinformation, defined as false information shared without malicious intent, is distinguished from disinformation, defined as deliberately false information disseminated with the intention of deception or manipulation (Dowse & Bachmann, 2022). Disinformation is weaponised information used strategically by state and non-state actors to undermine public trust, polarise societies and destabilise democratic processes (Bachmann, Putter & Duczynski, 2023; Matei, 2025). Libraries have emerged as a critical institution in this context. Their position in the information ecosystem is not arbitrary, as publicly funded, widely accessible institutions with a mandate for information literacy, community information and resource assessment, libraries differ structurally from schools (smaller audiences), media organisations (commercial interests) and tech platforms (structures of engagement rather than accuracy). Historically regarded as neutral repositories of knowledge, libraries are increasingly fighting misinformation through commitments to intellectual freedom and access to information (Adewojo, Esan & Aleem, 2024; Mandal & Lama, 2025). But are libraries really equipped to counter sophisticated disinformation campaigns, or is the rhetoric exaggerating the modest role they play in educating people? This paper examines whether this reorientation is justified in theory, feasible in practice and ethically sustainable.

2. Background: The Disinformation Threat Landscape

Disinformation warfare is the deliberate use of information ecosystems for political, military or economic purposes (Dowse & Bachmann, 2022). According to Matei (2025), disinformation is a fundamental shift in power competition, with novelty and narrative increasingly taking precedence over objectivity and truth. Research has shown that it has a significant impact in the geopolitical and economic context. Bachmann et al. (2023), for example shows how disinformation has been a powerful multiplier in the Russia-Ukraine war, while Tredinnick (2023) highlights its role in reputational attacks and market manipulation. Spitzberg (2025) extends the debate by introducing the concept of malinformation, which includes misinformation, disinformation and other forms of deliberate epistemic sabotage. Disinformation is spread by algorithmic amplification, cognitive biases, and emotionally charged content that can override critical judgment (Gill et al., 2019). The emergence of large-scale

linguistic models has further increased the scope and effectiveness of misinformation campaigns, while at the same time reducing their costs (Raman et al., 2024; Imam, 2025). Tsang's typology (2024) distinguishes between misinformation, disinformation and fraud and highlights the need for different responses by libraries. These differences are shown in Table 1.

Table 1: Adapted by the author from Bachmann et al. (2023), Matei (2025), Gergelewicz (2025), Gill et al. (2019), and Spitzberg (2025): Sources, mechanisms, and societal impacts of disinformation warfare

Source / Actor	Mechanism	Societal Impact	Domain
State actors (e.g. Russia, hybrid warfare)	Algorithmic amplification on social media	Undermines democratic governance & elections	Geopolitical
Non-state / political actors	Exploitation of cognitive biases	Erodes public trust in institutions	Political
Automated bots & deepfake technologies	Emotionally charged narratives bypassing evaluation	Polarises society; destabilises democracies	Technological
Commercial actors	Coordinated inauthentic behaviour	Market manipulation; public health crises	Economic / Public Health

These differences have direct operational implications for library practice, as shown in Table 1. Misinformation (false content shared without intent to mislead) is dealt with by correcting information and training in the assessment of the source. Disinformation (intentionally false content intended to mislead) calls for programmes of early childhood education and literacy. Malinformative (measured and weaponised) information requires contextual and ethical thinking skills (Tsang, 2024; Spitzberg, 2025; Becker, 2025). Understanding this spectrum is crucial to judging what libraries can realistically achieve.

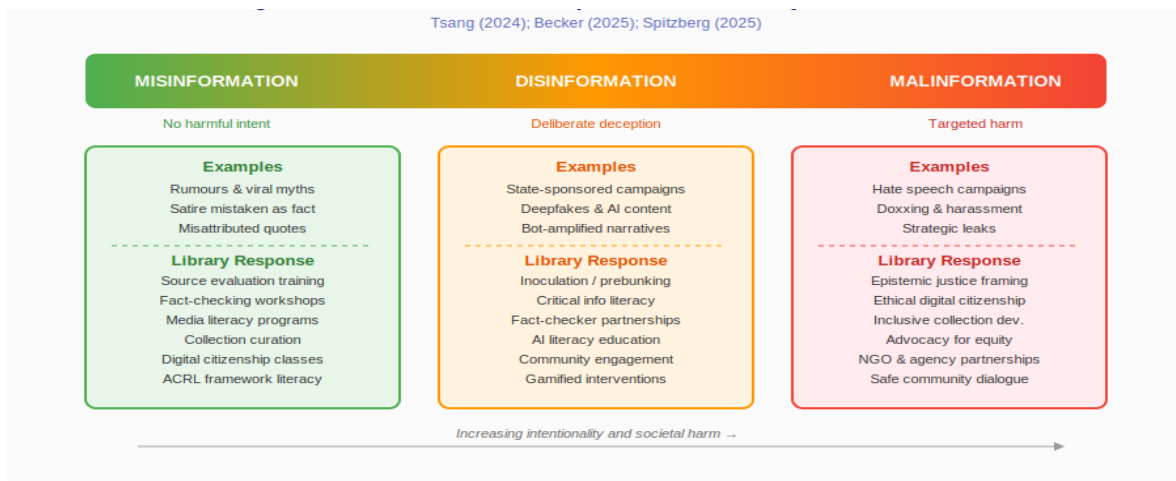


Figure 1: The Disinformation Spectrum and Library Interventions

3. Problem Statement

Disinformation is a constant feature of the modern information environment, driven by state actors, automated systems, and algorithms that favour immediacy over accuracy. Libraries are increasingly expected to help combat misinformation, but their capacity is often limited by limited funding, insufficient training, lack of outreach to vulnerable groups and lack of evidence of the long-term effectiveness of their interventions. Many librarians cite information overload (84%) and lack of training (56) as the main problems (Jahangir, 2025). These challenges are compounded by artificial intelligence (AI), which allows large-scale synthetic content creation (Raman et al., 2024; Imam, 2025), supports coordinated disinformation campaigns (Bachmann et al., 2023; Matei, 2025), and contributes to the algorithmic dissemination of misinformation (Seargeant & Tagg, 2018). If left unchecked, these developments could increase the susceptibility to disinformation, undermine democratic processes, and widen social divisions. Although libraries remain highly trusted institutions (Jahangir, 2025), their role in the fight against disinformation remains under-funded and under-appreciated.

3.1 Rationale

Historically, libraries have been trusted, publicly funded repositories of knowledge and consistently ranked among the most trustworthy institutions in democratic societies (Adewojo, Esan and Aleem, 2024; Jahangir, 2025). Eighty-five percent of library users believe that libraries should fight against misinformation, although this figure is likely to reflect a self-selection of library users (Jahangir, 2025) and may not represent a broader audience. Despite this, there is still limited rigorous empirical evaluation of library-based interventions: Broda and Strömbach (2024) identified important gaps in understanding long-term efficacy, and Tripodi et al. (2023) noted that librarians rely on outdated search literacy techniques, while state-sponsored disinformation campaigns use specialised staff, budgets and sophisticated tools (Bachmann et al., 2023) - asymmetries requiring multi-disciplinary responses (Munandar et al., 2026; Saunders, 2025).

3.2 Research Objectives

The study focuses on four objectives: (RO1) to assess the theoretical foundations underpinning libraries' role as defenders of public, academic, and educational information, drawing on the epistemic justice and information equity frameworks; (RO2) to document and evaluate the strategies used by libraries to counter disinformation; (RO3) to assess the empirical evidence base for library-based interventions; and (RO4) to propose an integrated interdisciplinary framework for countering disinformation within a multi-stakeholder ecosystem.

3.3 Methodology

This paper adopts a critical narrative literature review design, structured around an explicit analytical framework rather than a free-form synthesis. Sources were drawn from library and information science, media and information literacy, disinformation studies, and epistemology, selected for their relevance to the research objectives (RO1–RO4) rather than through a systematic search protocol. The review primarily examines literature published between 2018 and 2026, while incorporating key foundational works where relevant. Sources are synthesised into the thematic structure presented in Sections 4–10, culminating in the frameworks shown in Figures 2 and 3. As the study is based on critical appraisal of published literature rather than new empirical data, its findings constitute a conceptual and theoretical contribution. This approach aligns with established practice in critical narrative reviews, where rigour is achieved through a transparent analytical framework rather than a systematic search process (Grant & Booth, 2009; Baker, 2016).

4. Theoretical Foundations: Libraries' Role in the Information Ecosystem

The theoretical role of libraries as defenders against disinformation is based on a basic democratic principle: access to reliable information is a precondition for an informed citizenry. As publicly funded institutions committed to universal access, libraries are uniquely placed to provide curated and validated sources of information (Becker, 2025). The ACRL framework for information literacy articulates critical competences, including the recognition of the constructed nature of information, the critical assessment of sources and understanding of the social and economic context of information production, which directly equip individuals to counter misinformation. Libraries remain trusted institutions in democratic societies (Jahangir, 2025).

4.1 The Intellectual Freedom Paradox

For decades, the American Library Association and its affiliates have espoused intellectual freedom as a core value: the principle that individuals have the right to access a variety of perspectives without interference from the institution. The paradox is obvious: how can libraries protect intellectual freedom while fighting misinformation, which requires judgment about what is true and what is false? Libraries should not restrict access to information but equip users with skills to evaluate truth, credibility, and context. In practice, however, the distinction between user empowerment and access restriction is more blurred than in theory: curation and programming decisions include implicit judgments of the quality of the information. Acharya (2025) argues that transparency of the evaluation standards is an effective ethical guarantee, rather than denying that gatekeeping takes place. Salisbury (2019) expands on this criticism and notes that information literacy education tends to focus on tools and skills rather than educating learners about the nature of information itself.

4.2 Epistemic Justice and Information Equity

The concept of epistemic justice recognises individuals and communities as legitimate knowers whose perspectives deserve epistemic respect. In this context, libraries are facilitators of critical dialogue rather than arbiters of absolute truth. Epistemic justice focuses on equitable participation in knowledge production, while epistemic authority refers to the credibility granted to institutions or individuals as reliable sources of

knowledge. Epistemic trust, in turn, relates to the public confidence placed in those institutions and information systems. Libraries therefore play an important role in supporting critical engagement with information while making visible the structural inequalities that shape information access and credibility (Gonzalez, 2026). This framework also highlights broader inequalities in digital participation, particularly among low-income and marginalised communities with limited access to digital infrastructure and evaluation skills (Munandar et al., 2026).

4.3 A Structural Lens: Libraries as One Layer in a Defence-in-Depth System

Alongside epistemic justice, this review uses the defence-in-depth concept from cybersecurity, which recognises that no single measure can stop every threat and that multiple layers of protection are needed (Zurko, 2022). The two perspectives serve different purposes. Epistemic justice explains what libraries should do by helping people engage critically and fairly with information rather than deciding what is true. Defence-in-depth explains where libraries fit within the wider response to misinformation. It views libraries as one important layer in a broader system that also includes fact-checkers, platform governance, and policy actors (Mazurczyk, Lee & Vlachos, 2024). This approach helps address the gap between well-resourced disinformation campaigns and the more limited resources available to libraries. The framework is developed further in the four-layer model presented in Section 8.1 and revisited in the conclusion.

5. Strategies and Initiatives: What Libraries Are Doing

Libraries are addressing misinformation through information literacy training, source-evaluation workshops, digital citizenship programmes, community partnerships, fact-checking collaborations, staff development, and policy advocacy (Ogboru & Arharhile, 2026; Detlor et al., 2024). Figure 2 groups these activities into three layers: educational interventions, community engagement, and systemic support. The framework shows that no single approach is sufficient. Educational programmes have limited impact without community engagement, while community initiatives require institutional support to be sustainable.

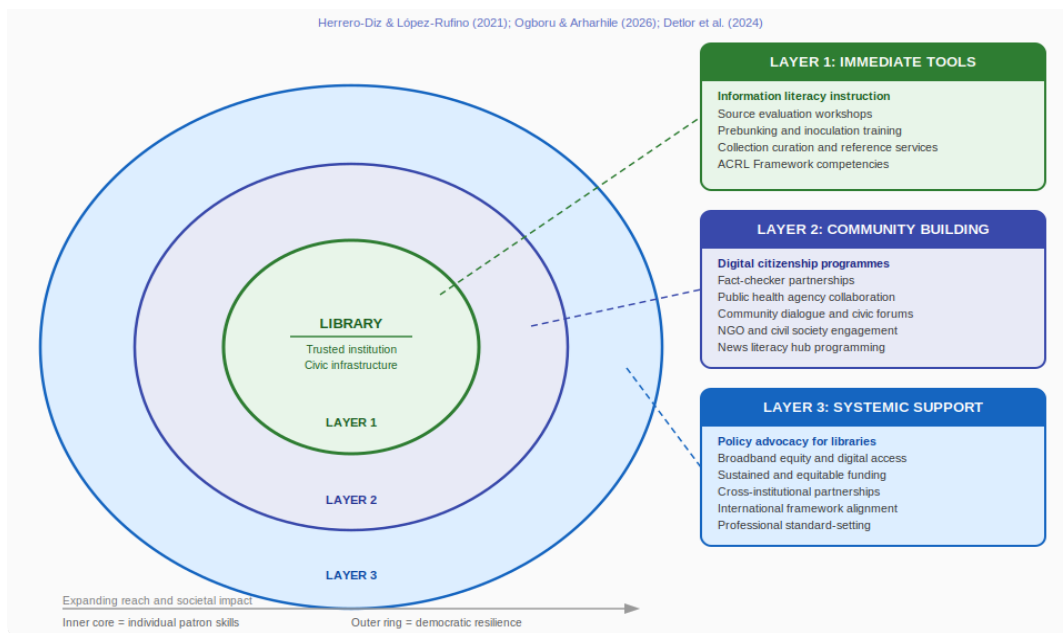


Figure 2: Library’s Multi-layered Defence Framework Against Disinformation

5.1 Community Engagement and Digital Citizenship Initiatives

Libraries engage with communities through digital citizenship initiatives that address the detection of misinformation, digital security and the use of ethical technologies (Iskandar et al., 2025). Jahangir (2025) reports on digital citizenship activities in 72 to 88 per cent of the institutions covered. Libraries also work with fact-checking networks, health agencies and civil society organisations - Ogboru and Arharhile (2026) argue that libraries are ideally placed to act as hubs for news literacy, with their community links, trusted sources and trained staff.

5.2 Partnerships and Collection Curation

Formal partnerships between libraries and fact-checking organisations have multiplied. Kerrigan and colleagues (2022) documents a collaboration between Irish universities and public libraries which produced a media literacy course with Meta and civil society organisations, a model which is increasingly being replicated in public health agencies. Curating reliable sources remains fundamental: academic libraries are expanding repositories open to the public, while public libraries are building collections centred on primary sources and peer-reviewed material (Becker, 2025).

6. Empirical Evidence: Do Library Interventions Work?

Recent research provides encouraging evidence that media and information literacy interventions can improve users' ability to identify misinformation. Studies of media literacy programmes in secondary schools report significant improvements in learners' ability to assess source credibility (Awololon & Sharma, 2024). Similarly, a meta-analysis of 33 inoculation studies (N = 37,025) found that gamified and video-based interventions improved users' ability to distinguish between reliable and unreliable information (Simchon et al., 2025). Feedback exercises on gamified platforms also improved misinformation detection (Leder et al., 2024). The evidence suggests that such interventions are particularly effective in producing short-term improvements in critical evaluation skills and attitudes toward misinformation. Longitudinal studies (N = 11,759) further show that inoculation interventions remain effective for approximately one month, while booster interventions can significantly extend these effects (Maertens et al., 2025). This indicates that preventative information literacy education may be more effective when reinforced over time rather than delivered as a once-off intervention.

6.1 Methodological Limitations and Gaps

Most studies focus on short-term effects in controlled settings rather than long-term behaviour in real-life situations (Broda & Strömbach, 2024). The impact of interventions is often small, and some media literacy programmes may even make people overconfident in their ability to detect misinformation (Bulger & Davison, 2018). Results also vary across contexts, with better outcomes among university students and in high-uncertainty environments, which limits how widely findings can be applied (Huang et al., 2024). Librarians are also not immune to misinformation or bias (Jaeger & Taylor, 2021). In addition, most research comes from Western, English-speaking countries, leaving gaps in understanding other contexts.

7. Challenges and Limitations

7.1 Resource Constraints and Funding Precarity

LaPierre and Kitzie (2019) found that the most frequently cited reason for not participating in media literacy initiatives was a lack of staff time; Jahangir (2025) similarly found that 56 percent reported a lack of training. Rural libraries face compounding challenges: limited digital infrastructure, insufficient staff and insufficient training hamper their anti-disinformation functions (Ogboru and Arharhile, 2026).

7.2 Political Weaponisation and Scale Mismatch

The term *fake news* is often used to discredit opposing views, including legitimate journalism (Acharya, 2025). This makes it difficult for libraries, as their efforts to counter disinformation may be seen as censorship or may increase political tension. At the same time, state-sponsored disinformation operates on a much larger scale, using funding, expert teams, bots, and technologies like deepfakes (Bachmann et al., 2023). Library interventions such as training workshops are much smaller and cannot match this speed or reach, so calling them a "first line of defence" risks creating unrealistic expectations. Research on inoculation and prebunking shows that teaching people early about common misinformation tricks helps them recognise and resist false information before they encounter it (Lewandowsky & van der Linden, 2021; Maertens et al., 2025), with effects that can spread through communities over time. This is, in effect, an asymmetric threat-actor problem familiar from cyber security: a well-resourced, adaptive adversary operating at machine speed against a comparatively under-resourced, largely manual defender.

7.3 Professional Training Deficits and Reach Limitations

Tripodi et al. (2023) found that librarians rely on outdated techniques of search literacy and are reluctant to confront patrons with politically sensitive information. Research on European fact-checkers has found that AI literacy is still in its early stages (Gonzales et al., 2024) - a finding that is also valid for librarians dealing with AI-generated misinformation. Library programmes mainly reach voluntary participants. The groups most

vulnerable to disinformation - those with lower educational attainment, limited digital access or high political mistrust - are least likely to participate. Hancock (2025) found that half of the professors surveyed had never used library resources related to false news, which illustrates the epistemic paradox.

7.4 Intellectual Freedom, Censorship, and Library Ethics

One of the greatest challenges libraries face is to manage the line between the work of countering disinformation and censorship. Curating authoritative sources or excluding unreliable material risks reinforcing dominant narratives and silencing marginalised voices. Acharya (2025) argues that the term fake news should be removed from professional discourse, as it has been so weaponised by political actors that its continued use undermines the work of information integrity. From the point of view of epistemic justice, the role of libraries is not to adjudicate the truth, but to facilitate a critical dialogue in which citizens collectively assess evidence and recognize how systemic power shapes access to information (Gonzalez, 2026). This requires transparent evaluation criteria, procedural fairness, and “protection of marginalised voices from systematic silencing.”

8. Discussion of Findings

The findings show that, rather than acting as direct “frontline defenders,” libraries play an important but limited role, mainly strengthening critical thinking, information literacy, and public trust. Their role is therefore better understood as supporting long-term democratic resilience rather than directly stopping misinformation campaigns. Research also shows that preventive information literacy education is generally more effective than reactive fact-checking after misinformation has already spread (Lewandowsky & van der Linden, 2021; Maertens et al., 2025). From the perspective of epistemic justice, libraries are not responsible for deciding absolute truth, but for helping communities critically evaluate information and different knowledge claims (Gonzalez, 2026). At the same time, several structural limitations reduce the effectiveness of library interventions: limited funding, unequal digital access, and restricted outreach make it difficult to reach those most vulnerable to misinformation. Libraries also face a major imbalance when competing against large-scale disinformation systems that use AI-generated content, automated technologies, and algorithmic amplification. There remains still limited long-term evidence measuring the impact of library interventions. Research also shows that librarians themselves are not immune to misinformation and cognitive bias (Jaeger & Taylor, 2021). Therefore, presenting libraries as primary defenders against disinformation without recognising these limitations may create unrealistic expectations and overlook the broader systemic nature of the problem

8.1 Toward an Integrated Framework: Libraries Within Multi-Stakeholder Ecosystems

Borrowing the defence-in-depth principle from cyber security, where overlapping layers of control compensate for the inevitable failure of any single safeguard, this framework treats counter-disinformation as a layered defence problem rather than a single point of failure. Figure 3 presents a conceptual-operational four-layer framework for countering disinformation within a multi-stakeholder ecosystem. Layer 1 positions libraries as the foundational actors providing information literacy, curated resources, and community trust. Layer 2 includes fact-checking organisations, civil society groups, and public health partners that verify and distribute corrected information. Layer 3 consists of platform governance and regulatory mechanisms, including moderation systems and algorithmic controls. Layer 4 involves national and international coordination structures responsible for broader policy responses and cross-border cooperation (Saunders, 2025; Gergelewicz, 2025; Raman et al., 2024). Together, the layers demonstrate that libraries are indispensable but insufficient on their own, with an early warning system linking the layers through cross-institutional information sharing to reinforce coordinated rather than isolated response.

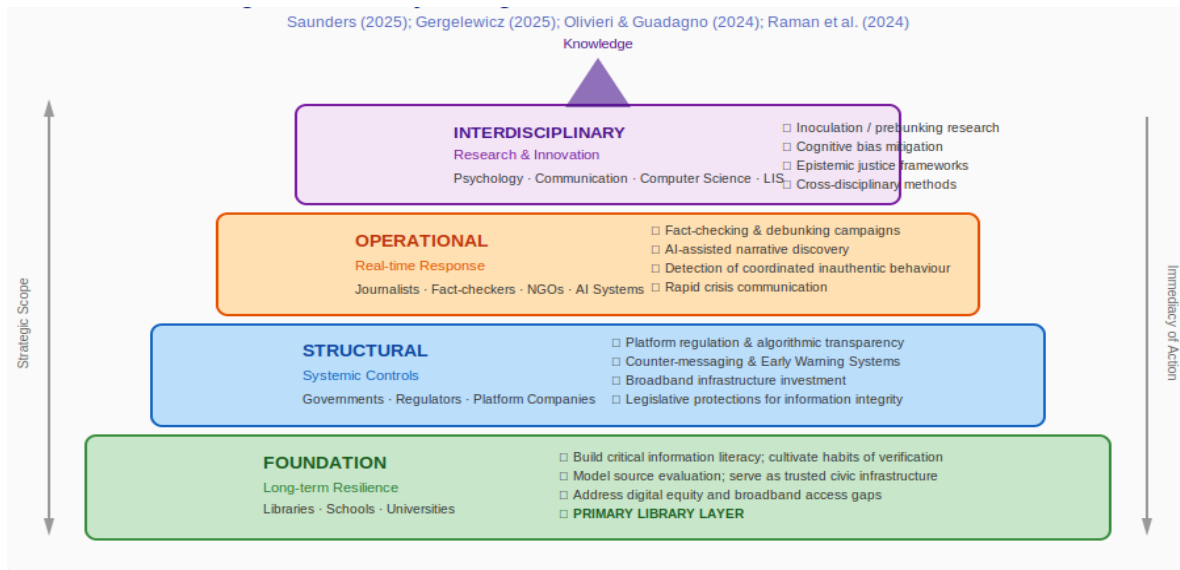


Figure 3: Four-layer Integrated Counter-disinformation Framework

9. Recommendations

9.1 For Library Leadership and Professional Associations

- Adopt transparent source-evaluation standards grounded in epistemic fairness principles (Gonzalez, 2026; Acharya, 2025), easing tensions between intellectual freedom and misinformation.
- Formalise partnerships with fact-checking organisations and public health authorities to integrate verified information into library reference and outreach services (Kerrigan et al., 2022; Becker, 2025).
- Integrate information literacy, cognitive psychology, communication studies, and computational deception detection into LIS curricula to strengthen librarians' preparedness for AI-generated and algorithmically amplified disinformation (Saunders, 2025; Kaspar, 2024).

9.2 Areas for Further Research

Future research should investigate whether library-led interventions produce lasting changes in users' ability to detect and respond to misinformation (Bulger & Davison, 2018; Broda & Strömbach, 2024), examine how cultural and infrastructural factors influence the effectiveness of anti-disinformation efforts in non-Western and developing contexts (Adewojo, 2026), and explore how libraries can be more effectively integrated into broader anti-disinformation systems, including fact-checking networks, prebunking initiatives, and AI-based detection mechanisms (Saunders, 2025; Gergelewicz, 2025).

10. Conclusion: Libraries as Necessary but Insufficient Defenders

Libraries are not merely information gatekeepers or providers of truth. They are essential in strengthening society's resistance to false information, but their contribution is not enough. From the standpoint of epistemic justice, libraries assist communities in critically analysing information rather than serving as arbiters of truth, emphasizing long-term critical thinking over reacting to specific instances of disinformation. Libraries are framed in this paper's four-layer model as the base layer of a defense-in-depth system. The defence-in-depth lens introduced in Section 4.3 supplies the structural counterpart to this normative commitment: libraries are framed in this paper's four-layer model as the base layer of a defense-in-depth system. While fact-checkers, platform governance, and policy actors offer more focused detection, control, and coordination, they promote population-wide resilience. Similar to cybersecurity, no single layer can prevent every threat; instead, by bolstering baseline resistance, the foundational layer lowers overall vulnerability. Specialized tasks like content removal and attribution fall under the purview of cybersecurity and intelligence systems, not libraries. Like basic security awareness training that lessens exposure to phishing and manipulation, their role is preventive and human-centered. This foundational layer shifts avoidable burdens onto higher-level responses, weakening the system as a whole if it is underfunded. Therefore, investing in professional capacity and acknowledging by funders and policymakers that information literacy is a fundamental component of national resilience are necessary to strengthen libraries. Taken together, epistemic justice explains what libraries

should do, while defence-in-depth explains where they fit within a broader response to misinformation. These perspectives show that libraries are a vital, yet underfunded, part of a wider defence against disinformation.

Ethics Declaration: This study did not require ethical clearance as it used publicly available data and involved no human participants or sensitive information.

AI Declaration: AI tools were used only for language refinement. The analysis, interpretation, and conclusions remain solely the responsibility of the author.

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